

1 F.T. Alexandra Mahaney, State Bar No. 125984  
2 WILSON SONSINI GOODRICH & ROSATI  
3 Professional Corporation  
4 12235 El Camino Real, Suite 200  
5 San Diego, CA 92130  
6 Telephone: (858) 350-2300  
7 Facsimile: (858) 350-2399  
8 Email: amahaney@wsgr.com

9 Bruce R. Genderson (*admitted pro hac vice*)  
10 Aaron P. Maurer (*admitted pro hac vice*)  
11 Rachel Shanahan Rodman (*admitted pro hac vice*)  
12 Adam D. Harber (*admitted pro hac vice*)  
13 WILLIAMS & CONNOLLY LLP  
14 725 Twelfth St. NW  
15 Washington, DC 20005  
16 Telephone: (202) 434-5000  
17 Facsimile: (202) 434-5029

18 Attorneys for Defendant and Counterclaimant  
19 SENORX, INC.

20  
21  
22  
23  
24  
25  
26  
27  
28  
IN THE UNITED STATES DISTRICT COURT  
NORTHERN DISTRICT OF CALIFORNIA  
SAN JOSE DIVISION

16 HOLOGIC, INC., CYTYC CORPORATION and )  
17 HOLOGIC L.P., )

18 Plaintiffs, )

19 v. )

20 SENORX, INC., )

21 Defendant. )

22  
23 SENORX, INC., )

24 Counterclaimant, )

25 v. )

26 HOLOGIC, INC., CYTYC CORPORATION and )  
27 HOLOGIC L.P., )

28 Counterdefendants. )

Case No. 08-CV-0133 RMW

**DECLARATION OF COLIN G.  
ORTON, Ph.D. IN SUPPORT OF  
DEFENDANT'S OPENING CLAIM  
CONSTRUCTION BRIEF AND  
MOTION FOR PARTIAL  
SUMMARY JUDGMENT OF NON-  
INFRINGEMENT**

Date: June 25, 2008  
Time: 2:00 p.m.  
Courtroom: 6, 4th Floor  
Judge: Hon. Ronald M. Whyte

1 I, Colin G. Orton, Ph.D., declare that:

2 **BACKGROUND**

3 1. The facts set forth below in this declaration are based on my personal knowledge,  
4 and if called as a witness, I could and would testify competently to those facts.

5 2. I am a radiation physicist with over three decades of experience specializing in  
6 medical radiation physics and, in particular, brachytherapy.

7 3. My educational and professional history are summarized in my C.V., attached as  
8 Exhibit 1 hereto. In summary, I graduated from the University of Bristol (UK) in 1959 with a  
9 Bachelor of Science degree in Physics. I subsequently obtained a Masters' degree (1961) and  
10 Ph.D. (1965) in Radiation Physics from St. Bart's Hospital Medical College, London University.

11 4. From 1966 through 1975, I practiced as a Medical Radiation Physicist at NYU  
12 Medical Center, including serving as Chief Physicist and Assistant and Associate Professor of  
13 Radiology. From 1975 through 1981, I served as the Chief Physicist at Rhode Island Hospital  
14 and as an Associate Professor of Radiation Medicine at Brown University. From 1981 through  
15 my retirement in 2003, I was the Chief Physicist and a Professor of Radiation Oncology at  
16 Harper Hospital and Wayne State University in Detroit, Michigan.

17 5. I am a member of several professional societies related to medical radiation  
18 physics, including the American Association of Physicists in Medicine ("AAPM") and American  
19 Brachytherapy Society ("ABS"). I served as president of AAPM in 1981, and in 1993 I was  
20 honored to be awarded the William D. Coolidge Award by the AAPM. The Coolidge Award is  
21 AAPM's highest honor, and is presented to a member who has exhibited a distinguished career  
22 in medical physics, and who has exerted a significant impact on the practice of medical physics.  
23 In addition, I was president of the American College of Medical Physics ("ACMP") in 1985, and  
24 received the Marvin M. D. Williams Award from the ACMP, their highest award. In 2002, I  
25 served as President of ABS, and prior to that, in 1995, I received ABS's highest honor, the  
26 Ulrich Henschke Award.

27 6. I have never testified as an expert in a patent case and have not testified in any  
28 other matter, as an expert or otherwise, in the last four years.

1           7.       I am being compensated for my time in this matter at my usual rate of \$450 per  
2 hour, plus expenses. My compensation does not depend on the outcome of this litigation.

3           8.       I have been asked by counsel for SenoRx, Inc. to provide testimony relating to the  
4 three patents at issue in this lawsuit, United States Patent Nos. 5,913,813 ( '813 patent),  
5 6,413,204 ( '204 patent), and 6,482,142 ( '142 patent).

6           9.       I have been asked to address these issues from the perspective of a "person of  
7 ordinary skill in the art." These patents are addressed primarily to radiation oncologists and  
8 radiation physicists. During the 1980s and 1990s, most of the literature, including patent  
9 literature, describing new devices in the same field came from radiation physicists or radiation  
10 oncologists. Indeed, the inventors of the patents-in-suit include both physicians and radiation  
11 physicists. The relevant scientific area is radiation oncology and radiation oncology physics. I  
12 understand that the person of ordinary skill is a hypothetical person who can have the skills of  
13 multiple individuals working together as a team. Thus, in my opinion, a person of ordinary skill  
14 in the art of radiation oncology and radiation physics for purposes of these patents would have  
15 the skills of both a radiation oncologist and a medical radiation physicist. Such a person would  
16 have a Ph.D. in Physics or Medical Physics with two or more years of clinical experience, or  
17 equivalent training and experience (*e.g.*, less education and more experience) and/or an M.D.  
18 degree with further training and Board Certification in radiation oncology with at least two years  
19 experience practicing as a radiation oncologist, or equivalent training and experience. Such a  
20 person would have knowledge of and experience in various forms of irradiation, including  
21 external beam treatment and brachytherapy, the history and use of brachytherapy devices  
22 (including balloon brachytherapy devices) to treat tumors and tissue remaining after the surgical  
23 extraction of all or a portion of a tumor in and around both naturally-occurring and surgically-  
24 created cavities, the physics of brachytherapy procedures, the principles of radioactivity, and an  
25 understanding of the effect of radiation on cells. Such a person would have experience inserting  
26 and using brachytherapy devices in a variety of cavities, including the brain, breast, bladder,  
27 rectum and vagina. In addition, such a person would be familiar with remote afterloading  
28 technology, as well as available radiation sources.

1           10. Unless otherwise stated, my opinions as to the '813 and '204 patents are based on  
2 the understanding of a person of ordinary skill in the art as of July 24, 1997, and as to the '142  
3 patent, as of December 16, 1999. Unless stated otherwise, my opinions would be the same if I  
4 used the definition of a person of ordinary skill proposed by Dr. Verhey in his Declaration  
5 submitted in support of Plaintiffs' Motion for Preliminary Injunction in this case. My primary  
6 disagreement with Dr. Verhey's definition is that the patents are not focused only on calculating  
7 radiation profiles, the primary responsibility of radiation physicists, but also on the design and  
8 use of brachytherapy devices. Radiation oncologists who use, and often implant these devices,  
9 are an important part of the team typically involved in the conception and use of new devices,  
10 and the skills of radiation oncologists thus should be included in the definition.

11           11. For purposes of the opinions set forth herein, I have considered the patents-in-suit  
12 and their prosecution histories. Further, I have examined SenoRx's Contura™ Multi-Lumen  
13 Balloon ("Contura"), including its instructions for use. I understand Plaintiffs allege the Contura  
14 infringes the patents-in-suit.

15                   **TECHNOLOGY DESCRIBED IN THE PATENTS-IN-SUIT**

16           12. The administration of radiation within natural and surgically-created body cavities  
17 to treat malignant tumors has been practiced for decades. When administering radiation within a  
18 body cavity, the ideal is to deliver 100% of the prescribed radiation dose to 100% of the target  
19 tissue. Where the cavity is surgically-created, such as in the brain or breast, the target tissue is  
20 usually defined as the tissue situated between the wall of the excised tissue and a specific  
21 prescribed distance beyond the wall.

22           13. Intracavitary radiation presents certain challenges. The absorbed radiation dose in  
23 tissue is inversely proportional to the square of the distance between each point in the radiation  
24 source and the tissue. Because of this inverse square relationship, delivering 100% of the  
25 prescribed radiation dose to the target tissue at a distance from the cavity wall necessarily means  
26 that a dose higher than prescribed will be administered to tissue nearer to the surface of the  
27 cavity. This may result in overexposure of healthy tissue near the cavity wall.

1           14.     The inventions described in the '813 and '204 patents are closely related and  
2 attempt to solve this problem in the same way. In general, these patents describe an instrument  
3 using a radioactive source to deliver the prescribed radiation dose to the target tissue. The  
4 patents attempt to accomplish this goal, while minimizing radiation exposure above the  
5 prescribed dose to tissue close to the radiation source, by requiring an outer volume, often a  
6 balloon, which when inflated, surrounds an inner spatial volume containing the radiation source.  
7 As depicted in Figure 7 of the '204 patent, the spacing apart of the inner volume containing the  
8 radiation source from the outer volume means the very high dose of radiation close to the source  
9 is not being administered to the tissue. Ideally, the slope of the curve of dose versus distance  
10 from the source (between the wall of the cavity and the furthest point of the target tissue) would  
11 be perfectly flat so that one would deliver 100%, but never more than 100%, of the prescribed  
12 dose to the target tissue. While this is not possible, the use of a balloon to space apart the  
13 radiation source from the wall of the cavity allows the dose to be delivered to tissue in the flatter  
14 portion of the curve shown in Figure 7D. This concept was well known by radiation physicists  
15 and oncologists for decades prior to the filing of the patents-in-suit and is a basic concept that I  
16 taught to my students when I began teaching the principles of brachytherapy in 1966.

17           15.     Further, the inventions also seek to ensure uniformity of dosing to the target tissue  
18 at points equidistant from the surface of the balloon by requiring that the source is centered  
19 within the body cavity. The patents achieve this by requiring that the distance from the wall of  
20 the inner spatial volume to the wall of the outer volume be constant over their entire surfaces.  
21 That is, the two volumes described in the patents must be the same shape. They also must share  
22 the same center and have the same orientation ("concentric"). As discussed in greater detail  
23 below, in this way the invention ensures the radiation dose to the target tissue is uniform at all  
24 points the same distance from the outer balloon.

25           16.     The '142 patent, on the other hand, claims a device producing a radiation profile  
26 that is asymmetric with the outer volume. This is accomplished by requiring the radiation source  
27 either to be a different shape than the outer volume or to be placed within the apparatus  
28 asymmetrically (*i.e.* not in the center of the outer volume).

**THE CONTURA**

17. I have been asked by counsel for SenoRx to examine its Contura product. The Contura is a balloon catheter device for delivering radiation therapy to the surgical margins following lumpectomy for breast cancer. I have worked with interstitial and intracavitary brachytherapy devices to deliver radiation since 1966. Referring to Exhibit 2, the balloon is labeled "A." The balloon is attached to the end of a catheter body, labeled "B." There are a number of lumens that run through the catheter body from one end of the Contura (the proximal end, "C") through to the other end (the distal end, "D"). Five of these lumens are designed to have a radiation source inserted into them; one is positioned in the center of the catheter body, and the other four are offset from the center lumen, and spaced at 90 degree increments (so that one is located above, one below, and one to either side of the central lumen). Another lumen connects to a vacuum port at the far end of the device, assisting physicians in conforming the walls of the lumpectomy cavity to the balloon by removing air and liquids from the cavity. A final lumen connects to the polyurethane balloon, and allows the balloon to be inflated and deflated.

18. In use, the device is inserted into a lumpectomy cavity of a woman, where the balloon portion is inflated with a contrast fluid. A CT scan of the device *in situ* is then made, and a radiation oncologist and radiation physicist determine how best to deliver radiation to the patient. Typically, the treatment plan seeks to deliver the prescribed radiation dose (usually 34 gray or "Gy") and dose distribution to target tissue at a predetermined depth (usually 1 cm). The treatment plan also seeks to minimize radiation to particularly sensitive tissues such as the skin, ribs and lungs. This is typically accomplished with the Contura by the use of multiple dwell positions in multiple lumens for different lengths of time.

19. After a dose plan is optimized and approved, an afterloader is connected to the catheter by the lumen(s) at the proximal end of the device. Afterloaders used with the Contura are shielded machines containing a single radiation source, generally Iridium ("Ir") 192. The radiation source used with the Contura is cylindrically shaped. The radiation source is inserted sequentially by the afterloader into multiple lumens of the Contura, although a single lumen

1 could be used on occasion. Radiation is delivered at precise locations along the distal end of  
2 each lumen by pausing and moving the radiation source according to the dose plan. The  
3 radiation source is withdrawn back into the afterloader after each treatment is delivered along a  
4 single lumen. Treatment with the Contura typically takes approximately five treatment days,  
5 after which the device is surgically removed from the patient.

6 **MEANING OF THE DISPUTED CLAIM TERMS IN THE PATENTS-IN-SUIT**

7 20. I have been asked to discuss, from the viewpoint of a person of ordinary skill in  
8 the art, the meaning of certain claim terms in the '813, '204 and '142 patents. My opinion of the  
9 meaning of each of these claim terms as they would be understood by a person of ordinary skill  
10 in the art is set forth below.

11 **A. Inner Spatial Volume ('813 Claim 1, '204 Claim 1)**

12 21. I understand the Court in a prior litigation concerning the '813 and '204 patents  
13 provided the following construction of inner spatial volume: "A region of space surrounded by  
14 an outer spatial volume that is either enclosed by a polymeric film wall or defined by the outside  
15 surface of a solid radionuclide sphere."

16 22. I agree with the Court's definition with one exception. It is my opinion the  
17 polymeric walls described in the '813 and '204 patents must be distensible. The patents disclose  
18 that the inner spatial volume either is a volume defined by a polymeric film wall or a solid  
19 spherical radionuclide. The specifications and preferred embodiments only describe polymeric  
20 walls that are distensible. *See, e.g.*, '813 Abstract; '204 patent, col. 2:56-60.

21 23. I agree with the Court that the '813 and '204 patents require the solid radionuclide  
22 to be spherical. The specifications and preferred embodiments only describe spherical, solid  
23 radionuclides. *See* '813 patent, col. 2:59-60, fig. 5; '204 patent, col. 4:44-48, figs. 3, 4. And,  
24 given that the outer balloon is generally spherical, a spherical radionuclide is required to  
25 maintain constant spacing between the surfaces of the inner and outer volumes of the device.  
26 Even more importantly, a non-spherical radionuclide disposed in a spherical balloon will not  
27 achieve a dose distribution that is the same at all points equidistant from the surface of the outer  
28 balloon, as required by the claims, both because of anisotropy (*i.e.* self-absorption of radiation in



1 a non-spherical source), and because some parts of the radiation source would be closer to tissues  
2 in some directions, but further from tissues in other directions.<sup>1</sup>

3 24. Finally, even if the solid radiation source were non-spherical and the same shape  
4 as the outer surface, it would be unlikely to produce an isodose profile that matched the shape of  
5 the outer surface. As a person of ordinary skill in the art would understand, anisotropy of non-  
6 spherical solid radiation sources causes the radiation source itself to absorb more radiation in the  
7 longitudinal direction than other directions, resulting in an isodose profile that is different in  
8 different directions. Thus, the person of ordinary skill in the art would understand the patents to  
9 require that the solid inner spatial volume embodiment must be spherical.

10 **B. Predetermined Spacing ('813 Claim 1, '204 Claim 3)**

11 25. Claim 1 of the '813 patent requires "predetermined constant spacing" between the  
12 inner spatial volume and the wall of the outer chamber. Likewise, claim 3 of the '204 patent  
13 requires "predetermined spacing" between the inner spatial volume and the surface of the outer  
14 spatial volume. Although the claim language is different, based on my review of the  
15 specification, it is my opinion these terms require the same thing for each patent: fixed spacing,  
16 predetermined before administering radiation, between the surfaces of the inner and outer  
17 volumes such that, when inflated, the distance from the closest point on the wall or edge of the  
18 inner chamber to the closest point on the outer chamber is the same. Put another way, a person  
19 of ordinary skill in the art would understand the '813 and '204 patents to require the inner spatial  
20 volume to be the same shape and concentric with the outer volume.

21 26. The specifications for the '813 patent and '204 patent make clear the invention  
22 requires constant spacing between the surfaces of the inner and outer volumes, *see* '813 Abstract;  
23 '813 patent, col. 1:55-57; '204 patent, col. 5:22-27, as do the drawings of the preferred  
24 embodiments, *see* '813 patent, figs. 1, 3; '204 patent, figs. 1, 5. Indeed, the '813 Abstract  
25 describes the walls of the two chambers as being "concentric" (for spherical chambers) and  
26

---

27 <sup>1</sup> Solid radionuclide sources are only described with respect to spherical outer balloons. *See*,  
28 *e.g.*, '813 patent, fig. 3; '204 patent, fig. 5.



1 “spaced equidistant over the entire surfaces thereof” (for non-spherical chambers). This means  
2 the two spaces must be concentric and the same shape.

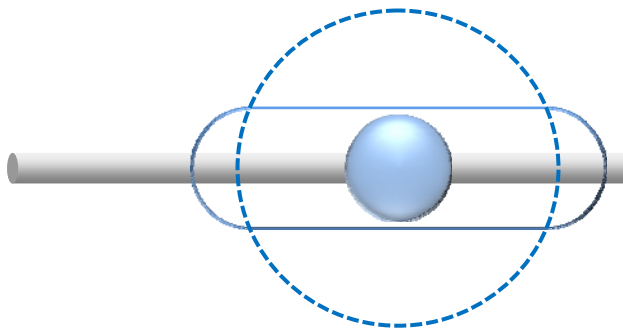
3 27. Moreover, one of the purposes of the inventions is to create a uniform dose  
4 distribution at points equidistant from the outer surface of the balloon. This necessarily requires  
5 concentric volumes of the same shape. If the inner spatial volume containing the radiation  
6 source is a different shape than the outer volume or off-center within the outer volume, some  
7 portion of the target tissue will receive less radiation than prescribed (cold spots), and other  
8 portions of the tissue will receive more radiation than prescribed (hot spots). Thus, the absorbed  
9 dose in the target tissue will not be substantially uniform at points equidistant from the surface of  
10 the outer chamber. To obtain the desired uniformity using the teachings of these patents, the  
11 distance between the wall of the inner spatial volume and the wall of the outer volume  
12 necessarily must be fixed and constant as claimed. Thus, a person of ordinary skill in the art  
13 would understand “predetermined constant spacing” in the ’813 patent and “predetermined  
14 spacing” in the ’204 patent to mean the inner spatial volume and outer volume are the same  
15 shape and concentric.

16 28. A person of ordinary skill in the art would read “predetermined spacing” of the  
17 ’204 patent, claim 3 to require constant spacing for the additional reason that claim 3 further  
18 requires a three-dimensional isodose profile that is substantially similar in shape to the  
19 expandable surface element. For the reasons discussed in paragraphs 49-51 below, it is clear that  
20 this limitation is only satisfied by the invention of the ’204 patent if the spacing is “constant.”

21 29. Consistent with my definition described in paragraph 25 above, “spacing”  
22 between two objects means the distance between the two closest points on the objects. The  
23 definition proposed by Plaintiffs that the spacing is “constant in all directions” for the spherical  
24 embodiment is imprecise. The spacing from any point on one surface is not the same to all  
25 points on the other surface. If Plaintiffs mean by “constant in all directions” the same concept as  
26 I discuss in paragraph 25, my proposed definition is more precise and will avoid confusion.

27 30. Plaintiffs also propose that, when the outer chamber is non-spherical, the spacing  
28 is “constant along a radial plane.” That construction is also flawed. First, the term “radial plane”

1 is imprecise and subject to confusion. I assume that Plaintiffs are referring to planes  
 2 perpendicular to the longitudinal axis of the non-spherical outer balloon, but there are an infinite  
 3 number of radial planes that could be constructed. Nowhere does the patent say the spacing  
 4 needs to be constant only along a single plane – let alone a radial plane. In addition, the spacing  
 5 between the surfaces of the inner and outer volumes can be constant along a radial plane, but  
 6 result in an isodose profile that is not the same in the target tissue at points equidistant from the  
 7 outer surface of the balloon. As illustrated below, for example, the distance between the surfaces  
 8 of a spherical inner volume containing the radiation source and a cylindrical outer volume can be  
 9 constant along each specific radial plane, but the resulting isodose profile would not give the  
 10 same dose to all tissue equidistant from the outer surface of the balloon, and would not create a  
 11 dose profile substantially similar to the shape of the outer volume.



19 31. Because both the '813 and '204 patents require constant spacing, the person of  
 20 ordinary skill in the art would understand the patents also to require the spacing to be fixed and  
 21 unchanging. The outer balloon is fixed once it is inflated. As a result, the distance between the  
 22 outer balloon and the inner spatial volume can remain constant only if the inner spatial volume  
 23 also remains fixed and unchanging during dosing. *See* '813 patent, col. 3:6-9; '204 patent, col.  
 24 5:10-12 (both requiring “exact positioning” of “individual radiation sources”).

25 32. Thus, it is my opinion the person of ordinary skill in the art would understand the  
 26 claim term “predetermined constant spacing” and “predetermined spacing” between the inner  
 27 spatial volume and the radiation transparent wall or expandable surface element to mean fixed  
 28 spacing, predetermined by one skilled in the art before administering radiation, between the wall

1 or edge of the inner spatial volume and the wall of the outer chamber, when inflated, which for  
2 each point on the wall or edge of the inner spatial volume, the distance to the closest point on the  
3 outer chamber is the same (*i.e.*, the inner spatial volume and outer chamber have the same shape  
4 and are concentric).

5 33. I understand Plaintiffs have made various contentions regarding why the Contura  
6 infringes the '813 and '204 patents. I understand Plaintiffs contend the portion of each of the  
7 five treatment lumens inside the Contura balloon is an inner spatial volume, that the five  
8 treatment lumens and the area within the balloon between and surrounding the five treatment  
9 lumens constitutes the inner spatial volume, and that the radionuclide is an inner spatial volume.  
10 Even if this is correct (and I disagree that any of these three alternatives are inner spatial  
11 volumes), in my opinion, the Contura still would not satisfy the "predetermined constant  
12 spacing" and "predetermined spacing" elements of the '813 and '204 patents as I have construed  
13 those claim elements.

14 34. First, none of the Contura lumens are arranged so that their entire surfaces are the  
15 same distance from the outer balloon. Because they are arranged roughly parallel to the  
16 longitudinal axis of the device, the distance from the surface of the lumen to the surface of the  
17 balloon changes as one moves down the axis. Thus, they are not arranged to have the same  
18 spacing as required by the claim element. In addition, none of these lumens have the same shape  
19 as the surface of the outer balloon when inflated. Therefore, there is no "predetermined constant  
20 spacing" or "predetermined spacing" between the inner spatial volume and the outer balloon.  
21 Moreover, the four offset lumens do not share a common center with the outer balloon, and thus  
22 there is no "predetermined constant spacing" or "predetermined spacing" between each of the  
23 four offset lumens and the outer balloon.

24 35. Second, the irregular, unbounded region within the balloon between and  
25 surrounding the five "treatment" lumens similarly has a different shape from the outer balloon  
26 and is not spaced a constant distance from the outer balloon. Therefore, there is no  
27 "predetermined constant spacing" or "predetermined spacing" between this region and the outer  
28 balloon.

36. Third, the radionuclide source (Ir-192) used with the Contura is cylindrical, not spherical. As a result, it is not the same shape as the Contura's spherical balloon, and the "predetermined constant spacing" or "predetermined spacing" limitation is not met. Further, the Contura also does not meet this limitation because the radionuclide source used with the Contura is not fixed. The radionuclide, as used by physicians with the Contura, is moved to multiple dwell positions during treatment. In addition, four of the Contura's lumens are offset from the center, and thus a radionuclide source placed within them would not be concentric with the outer balloon. As for the central lumen, it has multiple dwell positions, only one of which is centered within the outer balloon.

**C. Means . . . For Rendering Uniform ('813 Claim 1)**

37. Claim 1 of the '813 patent requires a "means disposed in the other of the inner spatial volume and outer chamber for rendering uniform the radial absorbed dose profile" generated by the radiation source. The means for performing this function is either "a low radiation absorbing material, e.g., air[,] or even a more absorptive material, such as an x-ray contrast fluid." '813 patent, col. 1:60-62. Unlike Ir-192 (the source used with the Contura), some of the radiation sources identified in the '813 patent are low enough energy sources for which x-ray contrast fluid or other radiation absorbing or attenuating material can significantly affect the dose versus distance curve at higher concentrations. *See* '813 patent, col. at 2:51-55, 3:42-8 (mentioning I-125, Y-90 and Yb-169). The person of ordinary skill in the art would understand this claim language to mean that radiation absorbing or attenuating materials cause the absorbed dose to be significantly<sup>2</sup> more uniform between the surface of the outer chamber and the target tissue by absorbing or attenuating radiation.

---

<sup>2</sup> The claim itself uses the word "uniform" without qualification. The person of ordinary skill would understand that it would be virtually impossible to render the dose versus distance curve completely flat between the edge of the balloon and the predetermined depth in the target tissue, but as explained in this section, it is possible to render the profile significantly more uniform. Thus, in my opinion, the person of ordinary skill would understand the term to mean significantly more uniform.

38. This interpretation is further required by the embodiment described at col. 3:51-65 of the '813 patent, in which the radiation source is in the outer volume and the radiation absorbing material is in the inner volume. In this embodiment, which is within the scope of claim 1, the radiation attenuating material is not used to space apart the radiation source from the tissue, but to attenuate the amount of radiation delivered to the tissue. Indeed, the patent already teaches spacing apart the inner and outer chambers in a different claim element – claim 1(c). Claim 1(e), on the other hand, would be understood by a person of ordinary skill in the art to teach that the structure described in the patent – radiation absorbing or attenuating material – performs the function of rendering the dose significantly more uniform by absorbing or attenuating radiation.

**D. Inner Closed Chamber ('813 Claim 2)**

39. A person of ordinary skill in the art would understand the term “inner closed chamber” to mean an inner chamber completely closed off within the outer, closed, inflatable chamber.

**E. Plurality of Solid Radiation Sources ('813 Claim 12, '204 Claim 17, '142 Claim 6)**

40. A person of ordinary skill in the art would understand “plurality of solid radiation particles” and “plurality of radioactive solid particles” as used in the patents-in-suit to mean two or more separate radioactive solid particles placed in the inner spatial volume at the same time.

41. This is the clear meaning of “plurality” to a person of ordinary skill in the art. Such a person would not understand “plurality of solid radiation sources” to include a single solid radionuclide, and the patents expressly distinguish between a single solid sphere and a plurality of radioactive particles. *See, e.g.*, '813 patent, col. 2:64-66; '204 patent, col. 5:1-4; '142 patent, col. 2:65-67, 3:7-10.

42. The person of ordinary skill in the art would also understand that the claim term requires that the multiple radiation sources be present in the device at the same time. For example, claim 6 of the '142 patent provides that the plurality of radiation sources are on at least two elongate members (described as wires or rods) extending into the apparatus volume. This

1 would be understood to mean the radiation sources were on at least two such wires at the same  
2 time. Further, the '142 specification teaches that the "resulting asymmetric isodose curve 40 can  
3 be further tailored by using solid radioactive particles 36 having differing specific activities to  
4 achieve the desired dosing." See '142 patent, col. 5:32-35 (emphasis added). The person of  
5 ordinary skill in the art would understand from this that the multiple radiation sources would be  
6 in the device at the same time. The only reason to use solid radiation sources with "differing  
7 specific activities" would be because they were used at the same time. A single solid  
8 radionuclide inserted sequentially would have the same specific activity each time it was  
9 inserted.

10 43. The specifications of the '204 and '813 patents teach the same thing. Both refer  
11 to "plurality of radiation emitting particles" that are "mounted on the distal ends of a plurality of  
12 wires . . . and exit a plurality of ports" and explain that the particular "arrangement allows the  
13 exact positioning of the individual radiation sources 44 to be positioned so as to generate a  
14 desired resultant profile." See '204 patent, col. 5:6-12 (emphasis added); '813 patent, col. 3:3-9  
15 (emphasis added). A person of ordinary skill would understand from this that the term  
16 "plurality" refers to multiple "individual radiation sources" positioned at the same time so that  
17 their combined radioactive activity creates a "resultant" isodose profile.

18 44. The person of ordinary skill would not consider a single source which is moved  
19 around inside the inner spatial volume to be a "plurality" of radiation sources. Such a person  
20 would understand "plurality" to exclude "one" source. Indeed, such a person would recognize  
21 that the inventors went out of their way to distinguish between a single source and the use of  
22 multiple sources at the same time. The invention focuses on the use of fixed sources and  
23 constant spacing to accomplish the goals of the inventions described in the patents. A device  
24 that had a single source that was moved around in the inner spatial volume would be viewed by a  
25 person of ordinary skill as a very different approach from the invention described in the patents-  
26 in-suit, where radiation is administered by two or more sources simultaneously.

27 45. My opinion that the invention described in the patents-in-suit does not include  
28 moving a single source around in the inner spatial volume is further supported by the fact that

1 afterloaders had been available since at least the early 1990s to move a single radiation source to  
 2 multiple dwell positions inside a catheter, as, for example, in gynecological oncology use. The  
 3 person of ordinary skill in the art would have been aware of this use of afterloaders, and would  
 4 have concluded from the description in the patents and the use of the term “plurality” that the  
 5 claims did not encompass this known use of moving a single radionuclide source into different  
 6 positions, and that the invention was attempting to solve the problems of obtaining desired  
 7 isodose curves by instead using multiple radiation sources in fixed positions at the same time.  
 8 Indeed, at the time of filing of the ’142 and ’204 patent applications, the inventors themselves  
 9 were aware of afterloaders that had the ability to insert solid radiation particles into a  
 10 brachytherapy apparatus. *See* ’142 patent, col. 5:8-10 (“solid radiation emitting material 36 can  
 11 be inserted through lumen 14 on a wire 34, for example using an afterloader”); ’204 patent, col.  
 12 4:54-56.

13 46. The Instructions For Use for the Contura state that the Contura is compatible with  
 14 the VariSource 200, VariSource ID, and Nucletron HDR afterloaders and the GammaMedPlus  
 15 afterloader. None of these afterloaders can place more than one radiation source into the Contura  
 16 device at any one time. To my knowledge, none of the commercially available afterloaders in  
 17 the United States today are capable of placing more than one radiation source at a time.

18 47. As used by physicians, the Contura device utilizes only one radioactive solid  
 19 source. In fact, a single source is almost always used for the entire treatment of an individual  
 20 patient. The existing afterloaders used with the Contura are able to hold only one source at a  
 21 time. Each radiation source remains in the afterloader for approximately 90 days before it is  
 22 replaced, which is far longer than the duration of a course of Contura therapy.

23 48. In my opinion, the Contura device as used by physicians does not satisfy the  
 24 “plurality” limitation of ’813 claim 12, ’204 claim 17 or ’142 claim 6.

25 **F. Three-Dimensional Isodose Profile That Is Substantially Similar in Shape to**  
 26 **the Expandable Surface Element (’204 Claim 1)**

27 49. Claim 1 of the ’204 patent claims a radiation source disposed in the inner spatial  
 28 volume “generating a three-dimensional isodose profile that is substantially similar in shape to



1 the expandable surface element.” A person of ordinary skill in the art would understand this  
2 phrase to mean the final resulting isodose profile is substantially similar in shape to the outer  
3 spatial volume expandable surface and is concentric with the outer spatial volume expandable  
4 surface.

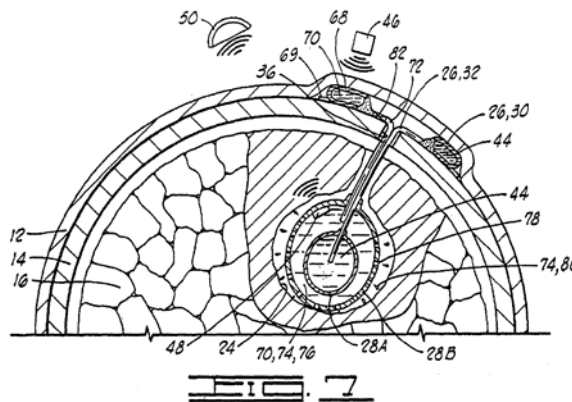
5 50. Radiation dosing is almost always administered in “fractions” or individual doses.  
6 Before delivering the first fraction, the radiation physicist typically determines the isodose  
7 distribution, which reflects the final, cumulative dose of radiation delivered to the patient at  
8 different distances in all directions. The patent claim uses the term “isodose profile” to mean  
9 this isodose distribution. This isodose profile is then used to determine a treatment plan, in  
10 which each fraction typically delivers the same dose distribution. The isodose profile, therefore,  
11 represents the sum of the fractions, which is the final, cumulative dose of radiation administered  
12 from the apparatus. The specification describes the dose to be delivered as the “absorbed dose,”  
13 ’204 patent, col. 2:46-48, and the person of ordinary skill in the art would understand this to  
14 mean the “final” or total resulting dose from the delivery of radiation to the tissue. For example,  
15 the specification discusses achieving a “predetermined dose range” in the target tissue, which is  
16 the dose “between a minimum prescribed absorbed dose for delivering therapeutic effects to  
17 tissue that may include cancer cells, and a maximum prescribed absorbed dose above which  
18 healthy tissue necrosis may result.” ’204 patent, 2:46-55; *see also, e.g.*, ’204 patent, 2:21-26 (“It  
19 is desirable to keep the radiation that is delivered to the tissue in the target treatment region  
20 within a narrow absorbed dose range . . .”). The person of ordinary skill in the art would  
21 understand this to be referring to the final, cumulative absorbed dose, and thus would understand  
22 the term “isodose profile” to mean the profile created from the total dose of radiation delivered  
23 by the device.

24 51. From my review of the specification and prosecution history, the inventors clearly  
25 defined what isodose profile meets the “substantially similar in shape” limitation – one that is  
26 substantially similar in shape and concentric with the surface of the outer volume. *See* ’204  
27 patent, col. 2:21-26, 2:46-55, 5:13-19. For example, the specification states that:  
28

As illustrated in Fig. 5, it is not essential to the invention that the volumes 30 and 34 have spherical walls, so long as the resultant dosing profile is consistent with the shape of the outer volume 34. That is, the absorbed dose within the target tissue at points equidistant from the surface 36 of the outer spatial volume 34 should be substantially uniform in substantially every direction.

'204 patent, col. 5:13-19. A person of ordinary skill in the art would necessarily understand that to accomplish an absorbed dose distribution within the target tissue that is uniform in every direction at points equidistant from the surface of the outer spatial volume, the isodose profile must be both the same shape and concentric with the outer expandable surface. *See also, supra*, § B.

52. The applicants' statements in the prosecution history make this requirement even clearer. In the prosecution history, the inventors distinguished U.S. Patent No. 5,429,582 (the "Williams '582 patent") by stating that the two balloons in the apparatus of Figure 7 were not "equally spaced apart," and therefore could not generate an isodose profile that has "substantially the same shape as the outer element." December 20, 2000 Am. to '204 patent at 15-16. Figure 7 of the Williams '582 patent is shown below:



53. Figure 7 of the Williams '582 patent has an inner and outer balloon of the same shape, but the inner balloon is asymmetrically located within the outer balloon. A person of ordinary skill in the art would understand that the isodose profile generated by this arrangement would be the same shape as the outer spatial volume, but would not be concentric with the outer spatial volume. As a result, such a person would understand the only reason the applicants could assert that the isodose curve created in Figure 7 was not "substantially the same shape as the

1 outer element” is that the isodose curve would not be concentric with respect to the outer spatial  
 2 volume. As such, a person of ordinary skill in the art would understand “substantially the same  
 3 shape as the outer element” to require an isodose curve that is both the same shape as and  
 4 concentric with the outer spatial volume.

5 **G. Controlled Dose To Reduce or Prevent Necrosis ('204 Claim 2)**

6 54. Claim 2 of the '204 patent specifically refers to “reduce or prevent necrosis.” A  
 7 person of ordinary skill in the art would understand the term to have the meaning proposed by  
 8 SenoRx: controlling the ratio of the dose at the expandable surface of the outer spatial volume to  
 9 the prescribed dose at the depth of interest in the target tissue so as to reduce or eliminate the risk  
 10 of damage to healthy tissue in contact with the expandable surface as compared to devices in  
 11 which the tissue is directly adjacent to the radiation source. The construction proposed by  
 12 Plaintiffs would require avoiding any death to cells in healthy tissue, which is inconsistent with  
 13 how a person of ordinary skill would understand “reduce or prevent necrosis in healthy tissue”  
 14 within the meaning of the claim.

15 **H. Apparatus Volume ('142 Claim 1)**

16 55. Claim 1 of the '142 patent discloses an instrument comprising “an expandable  
 17 outer surface defining a three-dimensional apparatus volume configured to fill an interstitial void  
 18 created by the surgical extraction of diseased tissue and define an inner boundary of the target  
 19 tissue being treated.” A person of ordinary skill in the art would understand “apparatus volume”  
 20 as it is plainly described in claim 1: a three-dimensional region of space within the expandable  
 21 outer surface that completely fills the void created by surgical removal of the tumor. This is how  
 22 the term is explicitly defined in the claim itself.

23 56. SenoRx’s proposed construction of apparatus volume is consistent with the last  
 24 clause of the claim term: “define an inner boundary of the target tissue being treated.” The  
 25 “volume” defined by the expandable outer surface itself defines the boundary of what is outside  
 26 the volume – here the target tissue being treated. Thus, it is perfectly consistent with my  
 27 understanding of the claim’s definition of “apparatus volume” that the apparatus volume also  
 28 defines the inner boundary of the target tissue being treated – that boundary is the outside surface

1 of the volume. Because the volume is itself defined by the expandable outer surface, it  
 2 necessarily follows that the expandable outer surface also could be said to define the inner  
 3 boundary of the target tissue.

4 57. I understand Plaintiffs propose that “apparatus volume” means “a three-  
 5 dimensional geometric solid composed of an expandable outer surface.” That term is not found  
 6 in the patent and would not provide any guidance to a person of ordinary skill in the art as to  
 7 what is encompassed by the claim term. Plaintiffs’ construction is also at odds with the claim  
 8 language and specification, which consistently and repeatedly refer to the apparatus volume as  
 9 just that – a volume of space into which radiation sources are inserted. *See, e.g.*, ’204 patent,  
 10 claims 1, 6; col. 3:1-11. A person of ordinary skill in the art would understand that while the  
 11 “expandable outer surface defin[es] a three-dimensional apparatus volume,” the “expandable  
 12 outer surface” and the “three-dimensional apparatus volume” are different things. To conflate  
 13 the surface with the volume, as Plaintiffs do in their proposed construction, in my opinion would  
 14 read out of the claim altogether the explicit definition of “apparatus volume” as a volume that  
 15 fills the interstitial void. It would also essentially define a surface to be a volume, which is  
 16 inconsistent with basic principles of geometry as would be understood by the person of ordinary  
 17 skill.

18 **I. Located So As To Be Spaced Apart from the Apparatus Volume (’142 Claim**  
 19 **1)**

20 58. The phrase “located so as to be spaced apart from the apparatus volume” would  
 21 be understood by a person of ordinary skill in the art to mean the radiation source must be  
 22 located outside of, and not within, the apparatus volume.

23 **J. Asymmetrically Located and Arranged Within the Expandable Surface (’142**  
 24 **Claim 1)**

25 59. Claim 1 of the ’142 patent requires the radiation source to be “asymmetrically  
 26 located and arranged within the expandable surface.” A person of ordinary skill in the art would  
 27 understand this phrase to mean the radiation source cannot be concentric with the expandable  
 28 outer surface. I understand that Plaintiffs seek to define “asymmetrically located and arranged”  
 to mean asymmetric with respect to the longitudinal axis of the device. Claim 1, however, does

1 not reference the longitudinal axis, nor would a person of ordinary skill in the art import that  
 2 limitation into the claim. Instead, claim 1 states the asymmetry is with respect to the  
 3 arrangement of the radiation sources anywhere within the expandable surface, indicating to a  
 4 person of ordinary skill in the art that the radiation sources must be off-center within the  
 5 expandable surface.

6 **K. Predetermined Asymmetric Isodose Curves ('142 Claim 1, 6)**

7 60. Claims 1 and 6 of the '142 patent require the invention to produce “predetermined  
 8 asymmetric isodose curves.” A person of ordinary skill in the art would understand that phrase  
 9 to mean isodose curves that are not substantially the same shape as the apparatus volume and/or  
 10 not concentric with the apparatus volume.

11 61. Plaintiffs again seek to construe “asymmetric” to mean asymmetric with respect  
 12 to the longitudinal axis of the apparatus volume. But neither claim 1 nor claim 6 references the  
 13 longitudinal axis when describing the isodose curves, nor would a person of ordinary skill in the  
 14 art import that limitation into the claims. Claim 1 states the invention provides predetermined  
 15 asymmetric isodose curves “with respect to the apparatus volume,” and claim 6 states the  
 16 predetermined asymmetric isodose curves are provided “within the target tissue.” Plaintiffs’  
 17 construction is also at odds with the patent’s preferred embodiments. Figures 3A and 4 are  
 18 clearly intended to represent “asymmetric isodose curves.” *See* '142 patent, figs. 3A and 4; col.  
 19 6:30-40, 6:52-63; *see also* '142 patent, col. 2:56-3:11. This is consistent with SenoRx’s  
 20 proposed construction because the profiles are not the same shape as the apparatus volume.  
 21 Plaintiffs’ construction, however, conflicts with the specification. Because Figures 3A and 4  
 22 depict isodose profiles that are symmetric with respect to the longitudinal axis of the apparatus  
 23 volume, Plaintiffs’ proposed construction would render the isodose curves in these embodiments  
 24 symmetric.

25 **L. Being Provided On At Least Two Elongate Members Extending into the**  
 26 **Apparatus Volume ('142 Claim 6)**

27 62. Claim 6 of the '142 patent provides that the plurality of radiation sources are  
 28 “provided on at least two elongate members extending into the apparatus volume.” This phrase  
 means the radiation sources are attached to at least two separate elongate members – *e.g.*, wires

1 or rods – that are contained within the outer surface at the same time. *See, e.g.*, '142 patent, Figs.  
2 3 and 4.

3 63. A person of ordinary skill in the art would understand the term “provided on . . .  
4 elongate members” to mean the radiation sources are physically attached to the elongate  
5 members. This construction is consistent with the plain meaning of the claim, each embodiment  
6 of the '142 patent containing a plurality of radiation sources on elongate members, and the  
7 specification.

8 //

1 I declare under penalty of perjury that the foregoing is true and correct.

2

3 Dated: May 21, 2008

4



---

Colin G. Orton, Ph.D.

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28



CERTIFICATE OF SERVICE

U.S. District Court, Northern District of California,  
*Hologic, Inc. et al. v. SenoRx, Inc.*  
Case No. C-08-0133 RMW (RS)

I, Kirsten Blue, declare:

I am and was at the time of the service mentioned in this declaration, employed in the County of San Diego, California. I am over the age of 18 years and not a party to the within action. My business address is 12235 El Camino Real, Ste. 200, San Diego, CA, 92130.

On May 21, 2008, I served a copy(ies) of the following document(s):

**DECLARATION OF COLIN G. ORTON, Ph.D. IN SUPPORT OF DEFENDANT'S  
OPENING CLAIM CONSTRUCTION BRIEF AND MOTION FOR PARTIAL  
SUMMARY JUDGMENT OF NON-INFRINGEMENT**

on the parties to this action by the following means:

Henry C. Su (suh@howrey.com)	Attorneys for Plaintiffs
Katharine L. Altemus (altemusk@howrey.com)	HOLOGIC, INC. CYTYC
HOWREY LLP	CORPORATION and
1950 University Avenue, 4th Floor	HOLOGIC LP
East Palo Alto, CA 94303	
Telephone: (650) 798-3500	
Facsimile: (650) 798-3600	

Matthew Wolf (wolfm@howrey.com)	Attorneys for Plaintiffs
Marc Cohn (cohnm@howrey.com)	HOLOGIC, INC. CYTYC
HOWREY LLP	CORPORATION and
1229 Pennsylvania Avenue, NW	HOLOGIC LP
Washington, DC 20004	
Telephone: (202) 783-0800	
Facsimile: (202) 383-6610	

☒ (BY MAIL) I placed the sealed envelope(s) for collection and mailing by following the ordinary business practices of Wilson Sonsini Goodrich & Rosati, 12235 El Camino Real, Ste. 200, San Diego, CA. I am readily familiar with WSGR's practice for collecting and processing of correspondence for mailing with the United States Postal Service, said practice being that, in the ordinary course of business, correspondence with postage fully prepaid is deposited with the United States Postal Service the same day as it is placed for collection.

☒ (BY ELECTRONIC MAIL) I caused such document(s) to be sent via electronic mail (email) to the above listed names and email addresses.

☒ (BY CM/ECF) I caused such document(s) to be sent via electronic mail through the Case Management/Electronic Case File system with the U.S. District Court for the Northern District of California.

I declare under penalty of perjury under the laws of the United States that the above is true and correct, and that this declaration was executed on May 21, 2008.



Kirsten Blue

# **Exhibit 1**

Date of Preparation: 5/21/08

**COLIN GEORGE ORTON, Ph.D.**

**Address:**

15810 Lakeview Court  
Grosse Pointe Park, MI 48230  
**Telephone:** (313) 823-8079  
**E-mail:** ortonc@comcast.net

**Personal Data:**

**Place of Birth:** London, England  
**Date of Birth:** June 4, 1938  
**Marital Status:** Married  
**Citizenship:** U.S.

**Education:**

1956-1959	University of Bristol, B.Sc. (Hons.) Physics
1959-1961	University of London, M.Sc. Radiation Physics
1961-1965	University of London, Ph.D. Radiation Physics

**Faculty Appointments:**

1959-1961	Research Physicist, St. Bartholomew's Hospital Medical College, London University
1961-1966	Instructor, St. Bartholomew's Hospital Medical College, London University
1966-1971	Assistant Professor of Radiology, NYU Medical Center
1971-1975	Associate Professor of Radiology, NYU Medical Center
1973-1975	Adjunct Professor, Biology Dept., Fairleigh Dickinson University, Madison, New Jersey
1975-1981	Associate Professor, Section on Radiation Medicine, Div. of Biological and Medical Sciences, Brown University
1981-2003	Professor, Radiation Oncology and Radiology, Wayne State University School of Medicine, Detroit, MI (Professor Emeritus, 2003 - )

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 2

### **HOSPITAL OR OTHER PROFESSIONAL APPOINTMENTS:**

1966-1975	Senior Physicist, New York University Medical Center
1969-1975	Consultant, Morristown Memorial Hospital, Morristown New Jersey
1975-1981	Chief Physicist, Rhode Island Hospital, Providence, RI
1977-1979	Medical Staff, Women and Infants Hospital, Providence, RI
1980-1981	Medical Staff, Rhode Island Hospital
1981-2003	Chief Physics Division, Radiation Oncology Center, Harper-Grace Hospitals, Detroit, MI
1981-2000	Associate Medical Staff, Harper-Grace Hospitals, Detroit, MI
1981-2003	Professional Staff, Radiation Oncology Research and Development Center, Harper Hospital, Detroit, MI
1982-2000	Associate Medical Staff, Hutzel Hospital, Detroit, MI
1982-2000	Associate Medical Staff, Children's Hospital, Detroit, MI
1982-2000	Associate Medical Staff, Detroit Receiving Hospital, Detroit, MI
1984	Acting Director, Radiological Physics Graduate Program, Wayne State University School of Medicine, Detroit, MI
1985- 2003	Director, Medical Physics Graduate Programs, Wayne State University School of Medicine, Detroit, MI
2000-2003	Associate Staff, Detroit Medical Center

### **MAJOR PROFESSIONAL SOCIETIES:**

American Association of Physicists in Medicine, (President, 1981)  
American Institute of Physics  
British Institute of Radiology  
Institute of Physics & The Physical Society, London  
Health Physics Society  
American Society of Therapeutic Radiology and Oncology  
American Brachytherapy Society (Treasurer, 1998-1999, Secretary, 1999-00, President- Elect, 2000-01, President, 2001-02).

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 3

International Organization for Medical Physics (Secretary-General, 1988-94; President-Elect, 1994-97, President, 1997- 2000, Past-President, 2000-2003)  
Great Lakes Chapter, AAPM  
Great Lakes Chapter, HPS (President, 1983-84)  
American College of Medical Physics (Chairman, 1985)  
European Society of Therapeutic Radiology and Oncology  
American College of Radiology  
Michigan Radiological Society  
Radiation Research Society  
Michigan Society of Therapeutic Radiology  
Int'l Union of Physical and Engineering Sciences in Medicine (President, 2003-06)  
Radiological Society of North America

### **BOARD CERTIFICATION:**

1983 American Board of Radiology (Therapeutic Radiological Physics)  
1989 American Board of Medical Physics (Radiation Oncology Physics)

### **HONORS AND AWARDS:**

1976 Elected Fellow of the Institute of Physics & The Physical Society  
1976 Awarded MA (ad eundem), Brown University  
1987 Marie Curie Gold Medal Award, HPS Great Lakes Chapter  
1988 Solomon Padam Singh Annual Orator, Calcutta, India  
1989 Elected Fellow of the American College of Medical Physics  
1989 Elected Fellow - American Assoc. of Physicists in Medicine  
1991 Elected Honorary Member, Romanian Medical Physicists Association  
1993 Elected Fellow of the American College of Radiology  
1993 Oettlé Memorial Lecturer, The Cancer Association of South Africa  
1993 William D. Coolidge Award, American Association of Physicists in Medicine  
1995 Hartman Orator, American College of Medical Physics  
1995 Ulrich Henschke Lecturer, American Brachytherapy Society  
1997 Marvin M.D. Williams Professional Achievement Award, American College of Medical Physics  
1998 1998 Giaocchino Failla Memorial Lecturer, Radiological and Medical Physics Society  
1998 Ramaiah Naidu Oration, Association of Medical Physicists of India, New Delhi  
1999 Keynote Speaker, Radiology 1999, Birmingham, UK (May 1999)  
1999 Nagalingam Suntharalingam Annual Orator, Philadelphia (May 1999)  
1999 Eastman Kodak Annual Memorial Lecturer, Rochester, NY (October 1999)  
2003 Award of Merit, Int'l. Union of Physical and Engineering Sciences in Medicine

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 4

## **SERVICE:**

### **Professional Consultation**

1976-1979, Coordination Consultant, Centers for Radiological Physics  
1981

### **Journal/Editorial Activity**

1971-1973	Editor, Bulletin of the American Association of Physicists in Medicine
1971-1973	Member, Editorial Board, American Institute of Physics
1974-1976	Associate Editor, Medical Physics
1978-1986	Editor, Progress in Medical Radiation Physics (Plenum Publishing Corp.)
1980-1987	Associate Editor, Int. Journal of Radiation Oncology Biology Physics
1980-1986	Board of Editors, Encyclopedia of Physics in Medicine and Biology
1982-1985	Associate Editor, Medical Physics World
1984	Editor, Bulletin of the American College of Medical Physics
1985-1988	Editor, Medical Physics World
1987-1995	Board of Editors, International Journal of Radiation Oncology, Biology, Physics
1991-	Editor (North America), IOPP Medical Science Series
1992-	Editorial Board, Radiation Oncology Investigations
1995-	Advisory Board, International Journal of Radiation Oncology Biology Physics
1997-2004	Editor, <i>Medical Physics</i>
1997-2004	Medical Physics Board of Editors (Chairman)

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 5

2000	Chairman, AIP Advisory Committee on Serials
2002 -	Associate Editor, Brachytherapy
2005-	Moderator, Medical Physics Point/Counterpoint Series

**National and International Boards and Committees**

1968-1970	Radiological and Medical Physics Society RAPHEX Committee (Chairman, 1970)
1969-1973	Member, Board of Directors, Radiological & Medical Physics Society, New York (Chairman, 1970-1972)
1970-1972	President, Radiological & Medical Physics Society
1970-1973 1980-1982	Member, Board of Directors, American Association of Physicists in Medicine
1971-1974	American Association of Physicists in Medicine, Budget and Finance Committee
1972-1976	American Association of Physicists in Medicine, Journal Editorial Committee
1974-1975	Radiological and Medical Physics Society, Radiotherapy Committee
1974-1975	Uranium Filter Review Committee (Varian)
1974-1977	American Association of Physicists in Medicine, Chairman, Computer Applications Committee
1974-1977	American Association of Physicists in Medicine, Science Council
1974-1984	Coordinating Committee for the New York Center for Radiological Physics (CRP)
1975-1976	American Association of Physicists in Medicine, "Medical Physics" Review Committee
1975-1978	New England Society of Radiation Oncology, Committee on Basic Science Practice (Chairman, 1977-78)
1976	Dartmouth-Hitchcock Medical Center-Scientific Review Committee



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 6

1976-1977	CRP Task Group on Leukemia and Lymphoma Dosimetry Protocol
1976-1978	CRP Subcommittee on International Activities
1976-1978	American Association of Physicists in Medicine, New England Chapter, Nominations Committee
1976-1979	Physics Today Advisory Committee
1976-1979	American Association of Physicists in Medicine, Publications Committee
1976-1979	CRP Subcommittee on Evaluation (Chairman)
1977-1978	Member, Board of Directors, AAPM New England Chapter
1977-1978	Member, Executive Committee, New England Society of Radiation Oncology
1977-1979	CRP Report Series Subcommittee
1977-1981	American Association of Physicists in Medicine, New England Chapter, Scientific Committee
1978	AAPM Farrington Daniels Awards Subcommittee
1978-1979	CRP Coordination Program Budget Committee
1978-1981	American Association of Physicists in Medicine, New England Chapter, Educational Committee
1979-1981	Executive Committee, Center for Energy Studies, Brown University
1979-1982	Bureau of Radiological Health, Mammographic Phantom Committee
1980	Consultant with NAS Committee on Federal Research on Biological and Health Effects of Ionizing Radiation
1980-1981	President-Elect and President, American Association of Physicists in Medicine
1980-1982	Member, Executive Committee, American Association of Physicists in Medicine (Chairman, 1981)
1981	Member, Physics Panel, Radio Graphics

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 7

1981	Chairman, AAPM Nominating Committee
1981	Chairman, AAPM ad hoc Committee on Radiation Policy
1981	Chairman, AAPM ad hoc Committee on Professionalism
1981-1982	Constituting Panel, American College of Medical Physics
1981-1987	ASTR Committee on Membership
1982	Chairman, Board of Directors, American Association of Physicists in Medicine
1982-2003	RTOG Physics Committee
1982-2003	RTOG Lung Committee
1982-1984	Member, Awards Committee, HPS Great Lakes Chapter (Chairman, 1982-83)
1982-1983	Co-Chairman, Symposium Committee, HPS Great Lakes Chapter
1982-1984	ACMP Certification Committee, Chairman
1983-84	President, Great Lakes Chapter, Health Physics Society
1983-1986	ACMP Board of Chancellors (Vice-Chairman, 1984, Chairman 1985)
1983-1990	AAPM Biological Effects Committee
1983-1990	Symposium Committee, HPS Great Lakes Chapter (Chairman 1983/84)
1984-1986	Chairman, AAPM Educational Council
1984	AAPM Nominating Committee
1984-1986	RSNA Educational Council
1984-1987	ACMP Annual Meeting Program Committee (Chairman 1984)
1984-1988	AAPM Task Group on Lung Corrections in Radiotherapy (Chairman 1984-86)
1984-1987	AAPM Great Lakes Chapter, Program Committee
1984-1994	AAPM Task Group on Evaluation of Models for Dose Response in Radiation

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 8

Oncology

1985-1990	AAPM Awards and Honors Committee
1985-1993	Board of Directors, American Board of Medical Physics (Vice-Chairman 1992-93)
1985-1987	American Board of Medical Physics Constituting Panel (Chairman, 1985).
1985-1988	ACR Committee on Computers
1986-1991	RSNA Refresher Course Committee
1986-1989	AAPM Nominating Committee
1986-1989	AAPM ad-hoc Committee on Guidelines and Protocols for AAPM Publications.
1986-1989	AAPM Liaison for Africa
1986-1987	HPS Great Lakes Chapter, Chairman, Educational Committee
1986-1990	HPS Great Lakes Chapter, Finance Committee
1986-1990	AAPM International Affairs Committee (Chairman 1987-90)
1986-1987	AAPM Annual Meeting, Technical Exhibits Committee (Chairman)
1986-1987	AAPM Annual Meeting Local Arrangements Executive Committee
1986-1989	ABMP Constitution and Bylaws Committee
1986-1989	ABMP Credentialling Subcommittee (Chairman)
1986-1994	AAPM Subcommittee on Research Databases
1987-1989	ABR Guest Examiner
1987-1990	AAPM ad hoc Committee on Organizational Relations with the Canadian Medical Physicists
1987-1991	Inter-Society Council for Radiation Oncology (ISCRO)
1987-1992	AAPM Task Group on Clinical Radiation Responses of Normal Tissues

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 9

1987-1992	AAPM Task Group on the Role of the Medical Physicist in Radiation Oncology
1987-1990	AAPM Task Group on International Publications Support.
1987-1988	Steering Committee, Third Int. Conference of Time, Dose, and Fractionation
1987-1989	ABR Written Examination Committee for Therapy
1987-1991	ACR Committee on Radiation Oncology Research and Development
1988-	Board of Councillors, International Union for Physical and Engineering Sciences in Medicine.
1988-	Board of Councillors, International Organization for Medical Physics
1988-2003	RTOG Time/Dose/Volume Delivery Committee
1988-2003	RTOG Publications Committee
1988-1990	ACR Committee on Radiological Systems and Information
1988-1990	ASTRO Radiation Physics Committee
1988-1990	AAPM Task Group on Liaison Organization
1988-1992	ABMP Part I Examination Panel (Chairman)
1988-1994	Secretary-General, International Organization for Medical Physics
1989	Co-Chairman, Remote Afterloading: State of the Art Conference
1989-2003	WSU Radiation Oncology Dept. Post-Graduate Medical Education Comm.
1989-	IOMP Developing Countries Committee
1989-1992	Co-Chairman, 1992 HPS Mid-year Symposium
1989-	IOMP Education and Training Committee
1989-1992	Chairman, 1992 HPS Mid-Year Symposium Technical Exhibits Committee
1990-	IOMP Nominating Committee

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 10

1990-1993	AAPM Medical Physics Manpower Task Group
1990-1994	ACMP Continuing Education Committee
1990-91	Steering Committee, Xian Conference on "Appropriate New Technology for Developing Countries," July 1991.
1990	Organizing Committee, Workshop on Remote Afterloading and Radiotherapy Treatment Planning, Seoul, Korea, 1991
1990-1991	Co-Chairman, Asian and Pacific Conference on Medical Physics Quality Assurance, Guangzhou, PRC, 1991.
1991-1994	Awards and Honors Committee, American College of Medical Physics
1991	Nominations Committee HPS Great Lakes Chapter
1992-	Specialist Adviser in Medical Physics, The Clinical Science Foundation
1992-2003	ACMP Reimbursements Committee
1992-2003	AAPM Biological Effects Committee
1992-1994	AAPM Research Committee
1992-1993	RORDC Research and Grants Committee
1993-	AAPM Task Group on Dose Equivalence in Brachytherapy
1993-1994	World Congress on Medical Physics, Technical Exhibits Committee
1994	IAEA Consultant, HDR Brachytherapy
1994-1997	Vice-President, International Organization for Medical Physics
1994-1996	ACR/ASTRO ad hoc Committee on Pulsed Dose Rate Remote Afterloading
1994-1997	ACMP TG on New Technology Radiation Oncology Physics Manpower
1994-1997	ACMP Commission on Credentials
1994-2000	IUPESM Congress Coordinating Committee (Chairman 1994-97)
1994-1997	IUPESM Award of Merit Committee (Chairman)

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 11

1994-1997	AAPM Task Group on The Need for, and Supply of Medical Physicists
1994-1997	IOMP Working Group on Funding Resources (Chairman)
1995, 1998, 2000	American Brachytherapy Society, Nominating Committee
1996	ACR Council Steering Committee Subcommittee for the ACR Standard for Therapy with Unsealed Sources.
1996	ACR Council Steering Committee Subcommittee for the ACR Standard for High Dose Rate Brachytherapy.
1966-	AAPM Medical Physics Journal Business Management Committee
1996-2003	Board of Directors, American Brachytherapy Society
1997-2000	President, IOMP
1997-2004	AAPM Publications Committee
1997-2003	AAPM Electronic Media Coordinating Committee
1997-01	AIP Advisory Committee on Serials (Chairman 2000-01)
1998	AAPM Task Group on Women in the AAPM
1998-2004	AAPM Continuing Education by Remote Means Subcommittee
1998-99	PACS Working Group, American Institute of Physics
1998	Scientific Committee, World Board Congress of Brachytherapy
1998	Organizing Committee, International Conference on Medical Imaging, Medical physics, and Precision Radiation Therapy, Guangzhou, China.
1999	Treasurer, American Brachytherapy Society
1999	AAPM Latin-American Affairs Subcommittee
1999	WHO Radiotherapy Committee/Cancer Program
1999	Co-Director, 3 <sup>rd</sup> Int'l Conference on New and Future Developments in High Dose Rate Brachytherapy, Detroit

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 12

1999	IUPESM Congress Coordinating Committee
1999-00	IOMP Awards and Honors Committee
1999-00	IOMP Nominating Committee (Chairman)
1999-00	Secretary, American Brachytherapy Society
1999/00	IOMP International Advisory Council (Chair)
2000	AAPM Nominating Committee
2000	Co-Director, 4 <sup>th</sup> International Conference on New and Future Developments in HDR Brachytherapy
2000	International Steering Committee, Frontier Science Research Conf.
2000-02	ACMP Awards and Honors Committee
2000-01	Vice-President, American Brachytherapy Society (ABS)
2000-03	Vice-President, IUPESM
2000-01	ABS Long Range Planning Committee
2000-2003	Chairman, IOMP Board of Counselors
2000-	AIP Publishing Policy Committee
2000-03	IUPESM Award and Honors Committee (Chairman)
2000-03	IUPESM Education and Training Committee (Chairman)
2001-02	President, American Brachytherapy Society
2001-03	World Congress on Medical Physics and Biomedical Engineering International Advisory Committee
2001	Co-Director, 5 <sup>th</sup> Annual Int'l Conference on New and Future Developments in Radiotherapy
2002	Co-Director, 6 <sup>th</sup> Annual Int'l Conference on New and Future Developments in Radiotherapy
2002	ABS Nominating Committee



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 13

2002	ABS Publications Committee
2002	ABS ad hoc Web Site Development Committee
2002 -2003	ABS Awards and Honors Committee (Chairman)
2002-2003	Chairman, ABS Board of Directors
2003	Co-Director, 7 <sup>th</sup> Annual Int'l Conference on New and Future Developments in Radiotherapy
2004	BioMed 2004 Technical Review Committee
2004	Co-Director, 8 <sup>th</sup> Annual Int'l Conference on New and Future Developments in Radiotherapy
2008-2010	AAPM Awards Committee

**State and local boards and committees**

1966-1975	Radiation Safety Committees, NYU and Bellevue Hospitals, NY
1975-1976	Task Group member of the Mayor's Technical Advisory Committee on Radiation, New York City
1975-1981	Radiation Safety Committee, Rhode Island Hospital
1975-1976	Radiation Safety Committee, Brown University
1977-1981	Rhode Island State Radiation Advisory Commission (Vice-Chairman, 1979-1981)
1977-1978	Subcommittee on Definition of Qualified Experts, Rhode Island Department of Health (Chairman)
1978-1980	Nominating Committee, Rhode Island State Radiation Advisory Commission (Chairman, 1980)
1978	Subcommittee on Qualification of Physicians Supervising Diagnostic Radiological Facilities, Rhode Island Department of Health
1978	AAPM Farrington Daniels Award Subcommittee
1981-2003	WSU Medical Physics Program Graduate Committee (Chair, 1984-2003)

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 14

1984-1986	Michigan Society of Therapeutic Radiologists Program Committee (Chairman, 1985/86)
1984-1988	Developmental Grants Review Committee, Michigan Cancer Foundation
1984-1989	Radiation Safety Committee, Wayne State University
1990-1991	Chairman, Radiation Oncology Dept., Medical Q.A. Committee, Harper Hospital
1990-2003	Graduate Affairs Committee, WSU School of Medicine
1990	Technical Advisory Work Group on Megavoltage Radiation Therapy, Michigan Dept. of Public Health
1990	Chairman, Radiation Oncology Department Graduate Committee, Wayne State University
1991	Wayne State University, Scholarships and Fellowships Review Committee
1991-1993	Advisory Committee, WSU Clinical Oncology Research Career Development Program
1992-1993	Chairman, Radiation Oncology Department Research Committee, Wayne State University and Harper Hospital
1992-	Michigan Radiological Society, Rules Committee
1992-2003	WSU Radiation Oncology Dept Appointment and Tenure Committee
1993-1999	Outstanding Graduate Mentor Award Selection Committee, Wayne State University
1994-1998	RODDC Technical Quality Assurance Committee (Chairman)
1994-1999	RORDC Benefits Committee
1994-1995	RORDC HDR Committee
1994-	Harper Hospital Library Advisory Committee
1994-	Michigan Radiological Society, ad hoc Committee on Radiation Oncology

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 15

1995	Program Committee, The 10th Congress of the Polish Society of Medical Physics
1995-2003	WSU Medical Physics Program, Admissions Committee (Chairman)
1995-2003	WSU Medical Physics Program, Curriculum and Evaluation Committee
1995-2003	WSU Medical Physics Program, Student Advisory Committee
1995-2003	WSU Medical Physics Program, Clinical Internships Committee
1998	Nominating Committee, AAPM Great Lakes Chapter
1998	WSU School of Medicine Graduate Affairs Committee
2000	AAPM Great Lakes Chapter Fellowship Committee
2000	Teaching Evaluation Committee, WSU Radiation Oncology Dept
2001-2002	WSU School of Medicine Graduate Programs Evaluation Committee
2001	WSU Educational Development Grants Committee
2004-05	Committee for Fellowship Nominations, AAPM Great Lakes Chapter

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 16

**TEACHING:**

**1. Years at Wayne State: 25**

**2. Years at other colleges/Universities**

Brown University: 6

New York University: 9

London University: 5

**3. Courses Taught at Wayne State**

- (a) Undergraduate: RT 4150, Radiobiology for the Technologist, 1994-2001).  
RT 4220, Radionuclide Physics, 1999-  
RT 3020, Clinical Radiation Physics, 2000-
- (b) Graduate: RAD 5010, Introductory Radiological Physics, 1989-1991  
RAD 7020, Radiotherapy Physics, 1986-1988  
RAD 7040, Radiation Dosimetry, 1994-1995  
RAD 7060, Applied Radiobiology, 1981-2001  
RAD 7070, Radiation Safety, 1994-2003  
RAD 7100, Statistics, 1995-1998
- (c) Residents: Radiation Oncology Residents Radiobiology Course:1981-2001  
Radiation Oncology Residents Physics Course 1981-1999

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 17

## **PUBLICATIONS:**

### **Original Observations in Refereed Journals**

1. Orton, C.G. The Measurement of High Doses of Ionizing Radiation. M.Sc. Thesis, London University, 1961.
2. Orton, C.G. The Radiation Induced Changes in Optical Density in Plastics. Ph.D. Thesis, London University, 1965.
3. Orton, C.G. Clear Perspex Dosimetry. Phys. Med. Biol. 2:377-386, 1966.
4. Orton, C.G., Berry, R.J. Reference Perspex Radiation Dosimeter. Phys. Med. Biol. 2:475-476, 1966.
5. Orton, C.G. Red Perspex Dosimetry. Phy. Med. Biol. 2:551-562, 1966.
6. Orton, C.G., Marshall, C.H. Measurement of Dose Distributions with Red Perspex. Phys. Med. Biol. 2:563-568, 1966.
7. Nussenzweig, R.S., Vanderberg, J., Orton, C.G., Most, H. Protective Immunity Produced by the Injection of X-irradiated Sporozoites of Plasmodium Berghei. Nature 216:160-162, 1967.

8. Orton, C.G. Photosensitivity of Clear Perspex Dosimeters. Int'l Journal of Applied Radiation & Isotopes, 19:297-298, 1968.
9. Orton, C.G., Busemann, E. Initial Fading Characteristics of LiF-Teflon Microrods. Luminescence Dosimetry, USAEC Report, Conf.- 690920, pp. 632-636, 1968 (Ed. J.A. Auxier).
10. Nussenzweig, R., Vanderberg, J., Orton, C.G., Most, H. Protective Immunity Produced by the Injection of X-irradiated Sporozoites of Plasmodium Berghei. II. Effects of Radiation on Sporozoites. The Journal of Parasitology 54, 1175-1180, 1968.
11. Nussenzweig, R., Vanderberg, J., Orton, C.G., Most, H. Specificity of Protective Immunity Obtained with X-irradiated Plasmodium Berghei Sporozoites. Nature 222:488-489, 1969.
12. Orton, C.G., Seibert, J. Surface Effects of High-Energy X-rays at Oblique Incidence. Brit. J. Radiology, 44:895, 1971.
13. Orton, C.G. and Seibert, J.B. Mass Dependence of the Sensitivity of LiF-Teflon Microrod Dosimeters. Int. J. Appl. Radiat. Isotopes. 22: 260-263, 1971.
14. Orton, C.G., Seibert, J. The Measurement of Teletherapy Unit Timer Errors. Phys. Med. Biol. 17:198-205, No. 2, 1972.
15. Orton, C.G., Seibert, J. Depth Dose in Skin for Obliquely Incident Co-60 Radiation. Brit. J. Radiol. 45:271-275, 1972.
16. Milvey, P., Orton, C.G., Seibert, J., Kaufman, L. Low Temperature Response of LiF-Teflon Dosimeters. Radiation Research 56:232-237, 1973.
17. Orton, C.G., Seibert, J. Instrument Nonlinearities and Therapy Unit Timer Error. Phys. Med. Biol. 18:863-865, 1973.
18. Orton, C.G., Marshall, C.H. Polymethylmethacrylate Dosimetry. (Review Article) J. Radn. Engin., Sept. 1972.
19. Orton, C.G. Analysis and Discussion of The Time/Dose/Fractionation Problem. AAPM Quart. Bull. 6:173-175, 1972.
20. Nussenzweig, R., Vanderberg, J., Spitalny, G.L., River, C., Orton, C.G., Most, H. Sporozoite Induced Immunity in Mammalian Malaria. Am. J. Trop. Med. Hyg. 24:722-728, No. 5, 1972.
21. Orton, C.G., Ellis, F. A Simplification in the Use of the NSD Concept in Practical Radiotherapy. Brit. J. Radiol. 46:529-537, 1973.
22. Orton, C.G., Seibert, J. Victoreen R-Meter Linearity and the Stem/End-Cap Effect. Radiology 110:732-733, 1974.
23. Orton, C.G. Time-Dose Factors (TDFs) in Brachytherapy. Brit. J. Radiology, 47:603-607, 1974.
24. Orton, C.G., Ellis, F. Definition of T in the NSD Equation. Brit. J. Radiol. 47:201-202, 1974.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 19

25. Orton, C.G., Seibert, J.S. Depth Dose in Skin for Obliquely Incident Co-60 Radiation. Yearbook of Radiology, 403-405, 1973. Dermatology Digest, 1973.
26. Orton, C.G. Errors in Applying the NSD Concept. Radiology, 115:232-235, 1975.
27. Orton, C.G. The NSD Formula and the Oxford Pig-Skin Experiments. British Journal of Radiology, 48:67, 1975.
28. Orton, C.G. NSD Calculations - A Simple Graphical Method. British J.Radiology, 48:68, 1975.
29. Orton, C.G. TDF Factors and Alternating Treatment Regimes. British J.Radiology, 48:230, 1975.
30. Orton, C.G. Nominal Standard Dose (NSD) and Radiation Tolerance of the Pig Kidney. Int. J. Radn. Onc., 1:809, 1976.
31. Orton, C.G. Sensitivity of TDF and CRE to Variations in Exponents of N and T. British J. Radiology, 49:897-898, 1976.
32. Orton, C.G., Webber, B.M. Time-Dose Factor (TDF) Analysis of Dose Rate Effects in Permanent Implant Dosimetry. Int. J. Radiation Oncology, 2:55-60, 1977.
33. Reinstein, L.E., Orton, C.G. Contrast Enhancement of High-Energy Radiotherapy Films. Brit. J. Radiology, 52:880-887, 1979.
34. Orton, C.G. Reassessment of Normalization between Fractionated and Continuous Radiotherapy for the CRE and TDF Equations. British J.Radiology, 53:374-375, 1980.
35. Orton, C.G. SI Units of TDF. British Journal of Radiology, 53:513-514, 1980.
36. Reinstein, L.E., Orton, C.G. "Horns" on a 6 MeV Linear Accelerator". Int. J. of Rad.Oncol. Biol. Physics, 7:111-113, 1981.
37. Mondalek, P.M., Orton, C.G. "Transmission and Build-up Characteristics of Polyurethane-Foam Immobilization Devices", Treatment Planning, VII, No. 3, 5-10, 1982.
38. Orton, C.G., Kim, J.J. "Measurement and Quality Assurance Equipment", Radiographics. Special RSNA Edition, 43, 1982.
39. Dutkowsky, J., Shearer, D.R., Schepps, B., Orton, C.G. "Dose Reduction in Routine Scoliosis Radiography." Proceedings of 17th Annual Meeting of the Scoliosis Research Society, 1982.
40. Schultheiss, T.E., Orton, C.G., and Peck, R.A. "Models in Radiotherapy: Volume Effects", Medical Physics, 10:410-415, 1983.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 20

41. Orton, C.G. A New Isoeffect Curve for Change in Dose Per Fraction. Radiotherapy and Oncology, 2:171-172, 1984.
42. Orton, C.G., Mondalek, P.M., Spicka, J.T., Herron, D.S., and Andres, L.I. "Lung Corrections in Photon Beam Treatment Planning: Are We Ready?" Int. J. Radiat. Oncol. Biol. Phys. 10:2191-2199, 1984.
43. Orton, C.G. and Herskovic, A. "A Proposal for Universal Introduction of Lung Corrections." Int. J. Radiat. Oncol. Biol. Phys. 10:2383-2384, 1984.
44. Schultheiss, T.E. and Orton, C.G. "Models in Radiotherapy: Definition of Decision Criteria." Medical Physics 12, 183- 187, 1985.
45. Orton, C.G. "Time-Dose Models." AMPI Medical Physics Bulletin, 10, No. 2, 137-162, 1985.
46. Orton, C.G. and Wolf-Rosenblum, S. "Dose Dependence of Complication Rates in Cervix Cancer Radiotherapy" Int. J. Radiat. Oncol. Biol. Phys. 12,37-44,1986.
47. Orton, C.G., Herskovic, A.M., and Ezzell, G.A., Spicka, J.T., and Vitalis, T. "Transmission Blocks: Clinical and Biological Rationales." Int. J.Radiat. Oncol. Biol. Phys. 11, 2155-2158, 1985.
48. Herskovic, A.M. and Orton, C.G. "Elective Brain Irradiation for Small Cell Anaplastic Lung Cancer." Int. J. Radiat. Oncol. Biol. Phys. 12, 427-429, 1986.
49. Vitalis, T.J., Reid, M.D., Orton, C.G., Ezzell, G.A., and Spicka, J.T. "The Application and Design of Transmission Blocks in Radiotherapy." Treatment Planning,X, No.2. 41-44, 1985.
50. Orton, C.G. "Dose Dependence of Complication Rates in Cervix Cancer Radiotherapy." OB/GYN Digest, 24-25, Sept. 1986.



51. Herskovic, A.M., Ezzell, G.A., Orton, C.G., Lattin, P.B., Eisenbrey, A. Thomas, M., Lazo, A., and Muz, J. "Novel Applications of Phosphorus-32 in the Treatment of Cystic Craniopharyngioma." Endocurietherapy/Hyperthermia 2, 129-135, 1986.
52. Orton, C.G. and Powers, W.E. Critique of "Essentials and Guidelines for Radiation Oncology Residency Training Programs." Int. J. Radiat. Oncol. Biol. Phys. 13, 945, 1987.
53. Ezzell, G.A., Orton, C.G., Maughan, R.S., and Spicka, J.T. "Practical Aspects of Transmission Cord Blocks in Radiotherapy." Medical Physics 14, 400-405, 1987.
54. Orton, C.G. "What Minimum Number of Fractions is Required with High Dose Rate Remote Afterloading." Brit. J. Radiol. 60, 300-301, 1987.
55. Orton, C.G. and Cohen L. "A Unified Approach to Dose-Effect Relationships in Radiotherapy I: Modified TDF and Linear Quadratic Equations." Int. J. Radiat. Oncol. Biol. Phys. 14, 549-556, 1988.
56. Orton, C.G. "A Unified Approach to Dose-Effect Relationships in Radiotherapy II: Inhomogeneous Dose Distributions." Int. J. Radiat. Oncol. Biol. Phys. 4, 557-560, 1988.
57. Murrell, D.S., and Orton, C.G. "Survival and Complications in Stage I Carcinoma of Corpus Uteri Receiving Post-Operative Irradiation." Radiotherapy and Oncology 12, 281-288, 1988.
58. Herron, D., Campbell, J.M., Ezzell, G.A., Powers, W.E., and Orton, C.G. "Coded Dummy Ir-192 Strands for Treatment Planning." Endocurietherapy/ Hyperthermia Oncology 5:107-110, 1988.
59. Spicka, J., Herron, D., and Orton, C.G. "Separating Output Factor into Collimator Factor and Phantom Scatter Factor for Megavoltage Photon Calculations." Medical Dosimetry 13, 23-24, 1988.
60. Orton, C.G. "TDF and L-Q Formulations used for Hyperfractionated Treatments." Int. J. Radiat. Biol. Phys., 15, 1049-1050, 1988.
61. Maughan, R.L., Blosser, H.G., Powers, W.E., Blosser, E.B., Blosser, G.F., Vicent, J., Ezzell, G.A., Orton, C.G. and Ragan, D.P. "Progress with the Superconducting Cyclotron Neutron Therapy Facility for Harper-Grace Hospitals." Radn. Prot. Dosimetry, 23, 357-360, 1988.
62. Mesina, C.F., Ezzell, G.A., Campbell, J.M. and Orton, C.G. "Acceptance Testing for the Selectron High Dose Rate Remote Afterloading Cobalt-60 Unit." Endocurie. Hypertherm. Oncol., 4, 253-256, 1988.
63. Mesina, C.F., Ezzell, G.A., Campbell, J.M. and Orton, C.G. "Commissioning the Selectron HDR Co-60." Activity, 2, 5-10, 1988
64. Warmelink, C., Ezzell, G., and Orton, C. "Use of a Time-Dose-Fractionation Model to Design High Dose-Rate Fractionation Schemes." In: Brachytherapy 2 (Ed.R.F. Mould), Nucletron, The Netherlands, pp 41-48, 1989.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 22

65. Orton, C.G. "High Dose Rate Remote Afterloading." The RMBA Bulletin, Vol. 24, No. 11, 10, 1989.
66. Dutkowsky, J.P., Shearer, D., Schepps, B., Orton, C., Scola, F. "Radiation Exposure to Patients Receiving Routine Scoliosis Radiography Measured at Depth in an Anthropomorphic Phantom. J. Ped. Orthop. 10, 532-534, 1990.
67. Herskovic, A., Orton, C.G. et. al. "Initial Experience with a Practical Hyperfractionated Accelerated Radiotherapy Regime." Int. J. Radiat. Oncol. Biol. Physics 21, 1275-1281, 1992.
68. Orton, C.G. "HDR in Gynecological Applications: Dose and Volume Considerations." Int. J. Radiat. Oncol. Biol. Physics, 20, 1379-1380, 1991.
69. Ahmad, K., Kim, Y.H., Orton, C.G. et al. "Fractionated High Dose Rate Brachytherapy and Concomitant Teletherapy in the Treatment of Carcinoma of the Cervix: Technique and Early Results." Endocurietherapy/Hyperthermia. 7, 117-124, 1991.
70. Orton, C.G. "HDR: Forget not "Time" and "Distance." Int. J. Radiat. Oncol. Biol. Phys. 20, 1131-1132, 1991.
71. Orton, C.G. "Fractionated high dose rate versus low dose rate cervix cancer regimens." British J. Radiol. 64, 1165-1166, 1991.
72. Alekhteyar, K.M., Herskovic, A.M., Orton, C.G., Ryan J., Lattin, P.B., and Ahmad, K. "Combined Brachytherapy and External Beam Radiotherapy in Soft-Tissue Tumors." Endocurietherapy/Hyperthermia/Oncology, 8, 53-59, 1992.
73. Orton, C.G. Seyedsadr, M., and Somnay, A. "Comparison of High and Low Dose Rate Remote Afterloading for Cervix Cancer and the Importance of Fractionation." Int. J. Radiat. Oncol. Biol. Phys. 21, 1425-1434, 1991.
74. Orton, C.G. "Recent Developments in Time-Dose Modelling." Australasian Physical & Engin. Sci. in Med. 14, No. 2, 57-64, 1991.
75. Orton, C.G. "Remote Afterloading for Cervix Cancer" Activity 5, No. 4, 33-35, 1991.
76. Ahmad, K., Kim, Y.H., Ezzell, G., Han, I.H., Orton, C.G., and Porter, A.T. "Reproducibility of Multifractionated Outpatient HDR Brachytherapy in Carcinoma of the Cervix Utilizing the Ahmad-Kim Positioner." Endocurie-therapy/Hyperthermia Oncology. 8, 171-173, 1992.
77. Orton, C.G. "Application of the Linear Quadratic Model to Radiotherapy for Gynecological Cancers." Activity, Supplement 2, 15-18, 1991.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 23

78. Orton, C.G. "Remote Afterloading for Cervix Cancer: the Physicists Point of Views." Activity, Supplement 2, 53-55, 1991.
79. Orton, C.G. "Fractionation is important for HDR cervix cancer brachytherapy." Int. J. Radiat. Oncol. Biol. Phys. 22, 222-223, 1992.
80. Orton, C.G. "Impact of Radiobiology on the Future of Radiation Oncology." Postepy Fizyki Medycznej 25, 87-100, 1992.
81. Herskovic, A., Kraut, M., Orton, C., Byhardt, R., Lattin, P., Han, S. "Experience with a Practical Hyperfractionated Accelerated Radiotherapy Regime." Seminars in Rad. Oncol. 2, 48-50, 1992.
82. Orton, C.G. "HDR vs LDR for Ca Cervix: High Risk or Biased Reporting." International Journal Radiation Oncology Biology Physics, 24, 387-388, 1992.
83. Forman, J.D., Orton, C., Ezzell, G., Porter, A. "Preliminary Results of a Hyperfractionated Dose Escalation Study for Locally Advanced Adenocarcinoma of the Prostate. Radiother. Oncol. 27: 203-208, 1993.
84. Orton, C.G. "High Dose Rate Versus Low Dose Rate Brachytherapy for Gynecological Cancer." Seminars in Radiation Oncology 3, 232-239, 1993.
85. Nag, S. and Orton, C. "Development of Intraoperative High Dose Rate Brachytherapy for Treatment of Resected Tumor Beds in Anesthetized Patients." Endocurietherapy/Hyperthermia Oncology 9, 187-193, 1993.
86. Orton, C.G. "Dose Rate Considerations in Brachytherapy: Biological Equivalence of LDR and HDR." Journal of Medical Physics 19, 1-8, 1994.
87. Orton, C.G. "High Dose Rate Brachytherapy for Cervix Cancer." Cope, March/April, 32-33, 1994.
88. Orton, C.G. "Single Fraction Treatment in Stereotactic Radiosurgery." Thai Cancer Journal, 19, 35-41, 1994.
89. Orton, C.G. "Uses of Therapeutic X-Rays in Medicine." Health Physics, 69(5):662-676, 1995.
90. Orton, C.G. "Width of the Therapeutic Window: What is the Optimal Dose-per-Fraction for High Dose Rate Cervix Cancer Brachytherapy." Int. J. Radiat. Oncol. Biol. Phys. 31, 1011-1013, 1995.
91. Ataya, K., Pydyn, E., Ranahi-Ataya, A., Orton, C.G. "Is Radiation -Induced Ovarian Failure in Rhesus Monkeys Preventable by Luteinizing Hormone-Releasing Hormone Agonists ? Preliminary Observations." J. Clinical Endocrinology and Metabolism, 80, 790-795, 1995.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 24

92. Han, I., Malviya, V., Orton, C., Chuba, P., Devi, S., Deppe, G., Malone, J., Christensen, C., Ahmad, K., Kim, Y. Porter, A. "Multifractionated High Dose Rate Brachytherapy with Concurrent Daily Teletherapy for Cervical Cancer." *Gynecologic Oncology*, 63: 71-77, 1996.
93. Forman, J.D., Duclos, M., Shamsa, F., Porter, A.T., and Orton, C.G. "Hyperfractionated Conformal Radiotherapy in Locally Advanced Prostate Cancer: Results of a Dose Escalation Study." *Int. J. Radiat. Oncol. Biol. Phys.* 34: 655-662, 1996.
94. Nag, S., Orton, C and Thomadsen, B. Remote Controlled High Dose Rate Brachytherapy. *Crit. Research. Oncol/Hematol.* 22, 127-150, 1996.
95. Orton, C.G. "Comparison Between High Dose Rate and Low Dose Rate Brachytherapy." *Ulusal Medikal Fizik Kongresi, Bayrak Yayimeilik, Istanbul*, 17-32, 1996.
96. Orton, C.G. "Recent Developments in Time-Dose Modelling" *Ulusal Medikal Fizik Kongresi, Bayrak Yayimeilik, Istanbul*, 17-32, 1996.
97. Chuba, P.J., Sharma, R., Yudelev, M., Duclos, M., Shamsa, F., Giacalone, S., Orton, C.G., Maughan, R.L., Forman, J.D. "Hip Stiffness Following Mixed Conformal Neutron and Photon Radiotherapy: A Dose-Volume Relationship." *Int. J. Radiat. Oncol. Biol. Phys.* 35, 693-699, 1996.
98. Forman, J.D., Shamsa, F., Maughan, R.L., Orton, C.G. "Improving the Therapeutic Ratio of Radiation in Locally Advanced Prostate Cancer: Mixed Neutron/Photon vs Hyperfractionated Photon Irradiation." *Rad. Oncol. Inv.* 4, 129-134, 1996.
99. Han, I, Ezzell, G.A., Orton, C.G. "HDR Brachytherapy for Cancer of the Cervix: Technique and Results." *Activity, Special Report No. 8.*, 22-27, 1996.
100. Forman, J.D., Shamsa, F., Maughan, R.L., Duclos, M., Orton, C. "Comparison of Hyperfractionated Conformal Photon with Conformal Mixed Neutron/Photon Irradiation in Locally Advanced Cancer." *Bull. Cancer/Radiother.* 83 (Suppl. 1), 101-105, 1996.
101. Aggarwal, L.M. Orton, C.G., Ezzell, G. Vashishta, R., Singh, B., Passi, K. "Electron Beam Edge Modifier: A Solution for Treatment of Sloping Area with Two Abutting Electron Fields": *J. Med. Phys.* 21, 3, 139-141, 1997.
102. Forman, J.D., Kocheril, P.G., Hart, K., Chuba, P., Washington, T., Orton, C.G., Porter, A.T. "Estimating the RBE for Pelvic Neutron Irradiation in Patients Treated for Carcinoma of the Prostate," *Journal of Brachytherapy* 13, 29-34, 1997.
103. Alecu, R., Feldmeier, J.J., Court, W.S., Alecu, M., Orton, C.G. "A Model to Avoid Misadministrations in High Dose Rate Brachytherapy. *Medical Phys.* 24, 259-261, 1997.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 25

104. Orton, C.G., Chungbin, S., Klein, E.E., Gillin, M.T., Schultheiss, T.E., Sause, W.T. Study of Lung Corrections in a Clinical Trial (RTOG 88-08). *Int. J. Radiat. Oncol. Biol. Phys.* 41, 787-794, 1998.
105. Orton, C.G. "High and Low Dose Rate Brachytherapy for Cervical Carcinoma." *Acta Oncologica* 37, 117-125, 1998.
106. Narayana, V., Orton, C.G. "Pulsed brachytherapy: A Formalism to Account for the Variation in Dose Rate of the Stepping Source." *Medical Physics* 26, 161-165, 1999.
107. Nag, S., Orton, C., Young, D., Erickson, B. "The American Brachytherapy Society Survey of Brachytherapy Practice for Carcinoma of the Cervix in the United States." *Gynecologic Oncology* 73, 111-118, 1999.
108. Abadir, R. and Orton, C.G. "Radiotherapy for Small Cell Lung Cancer." *New England J. Med.* 340, 2002-2003, 1999 (Letter to the Editor).
109. Aref, A., Mohammad, R., Yudelev, M., Choudhuri, R., Strowbridge, A., Orton, C., Al-Katib, A. "Radiobiological Characterization of Two Human Chemotherapy-Resistant Intermediate Grade Non-Hodgkin's Lymphoma Cell Lines. *Radiat. Oncol. Invest.* 7:158-162, 1999.
110. Han, I., Orton, C., Shamsa, F., Hart, H. Strowbridge, A., Deppe, G., Porter, A., and Chuba, P. "Combined Low-Dose-Rate Brachytherapy and External Beam Radiation for Cervical Cancer: Experience Over Ten Years." *Rad. Oncol. Invest.* 7:289-296, 1999.
111. Aref, A., Yudelev, M., Mohammad, R., Choudhuri, R., Orton, C., Al-Katib, A. "Neutron and Photon Clonogenic Survival of Two Chemotherapy Resistant Human Intermediate-grade Non-Hodgkin Lymphoma Cell Lines: *Int. J. Radiat. Oncol. Biol. Phys.* 45, 999-1003, 1999.
112. Porter, A., Aref, A., Chodouwski, R., Elzawawy, A., Manatrakul, N., Nzoma, T., Orton, C., Van't Hooft, E., and Sikora, K. A Global Strategy for Radiotherapy: A WHO Consultation. *Clinical Oncology* 11: 368-370, 1999.
113. Orton, C.G. and Croft, B.Y. "With the Expectation that Cancer Detection and Treatment will Occur Increasingly at the Molecular and Gene Levels Medical Physics Trainees Should Take Courses in Molecular Biology and Genetics." *Med. Phys.* 27, 1209-1211, 2000.
114. Nag, S., Erickson, B., Thomadsen, B., Orton, C., Demanes, J., Petereit, D. "The American Brachytherapy Society Recommendation for High-Dose Rate Brachytherapy for Carcinoma of the Cervix. *Int. J. Radiat. Oncol. Biol. Phys.* 48, 201-211, 2000.
115. Beyer, D., Nath, R., Butler, W., Merrick, G., Blasko, J., Nag, S., Orton, C. "American Brachytherapy Society Recommendations for Clinical Implementation of NIST-1999 Standards for <sup>103</sup>Pd Brachytherapy." *Int. J. Radiat. Oncol. Biol. Phys.* 47, 273-275, 2000.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 26

116. Gray, J.E. and Orton, C.G. "Medical Physics: Some Recollections in Diagnostic X-ray Imaging and Therapeutic Radiology." *Radiology* 217, 619-625, 2000.
117. Orton, C.G. "High-Dose-Rate Brachytherapy may be Radiobiologically Superior to Low-Dose-Rate due to Slow Repair of Late-Responding Normal Tissue Cells." *Int. J. Radiat. Oncol. Biol. Phys.* 49, 183-189, 2001.
118. Beyer, D., Nath, R., Butler, W., Blasko, J., Nag, S., Orton, C. "125 Gy or 135 Gy?" Letter to the Editor, *Int. J. Radiat. Oncology, Biology, Physics* 49, 898, 2001.
119. Beyer, D., Nath, R., Butler, W., Blasko, J., Nag, S., Orton, C. "In Regard to the American Brachytherapy Society Recommendations for <sup>103</sup>Pd Brachytherapy." Letter to the Editor, *Int. J. Radiat. Oncol. Biol. Phys.* 49, 899-900, 2001.
120. Rodriguez, R.R., Nag, S., Orton, C.G. et al. "High Dose Rate Brachytherapy for Prostate Cancer: Assessment of Current Clinical Practice and Recommendations of the American Brachytherapy Society." *J. Brachytherapy International*, 17, 265-281, 2001.
121. Orton, C.G. "Incorporating clinical measurements of hypoxia into tumor control modeling of prostate cancer: implications for the  $\alpha/\beta$  ratio". *Int. J. Radiat. Oncology, Biology, Physics* 58, 1637, 2004.
122. Orton, C.G. "A review of new technological developments in the radiotherapeutic treatment of cancer". *IFMBE Proceedings*, Vol. 7, 2004, 1 – 4.
123. Orton, C.G. "Radiation therapy for prostate cancer". *IFMBE Proceedings*, Vol. 7, 2004, 195 – 197.
124. Niroomand-Rad, A, and Orton, C.G. "Recent developments in therapeutic applications of atomic and nuclear radiations". *Atoms for Peace: An International Journal*, Vol.1, Nos. 2/3, 227-238, 2006.
125. Santanam, L., He, T., Yudelev, M., Forman, J.D., Orton, C.G., et al. "Intensity modulated neutron radiotherapy for the treatment of adenocarcinoma of the prostate". *Int. J. Radiat. Oncol. Biol. Phys.* 68, 1546-1556, 2007.

#### **Books and Chapters:**

1. Orton, C.G. The Clear PMMA Dosimeter. *Manual on Radiation Dosimetry*. Marcel Dekker, New York. (Ed. Holm & Berry) 357-361, 1970.
2. Orton, C.G. & Marshall, C.H.: Radiological Physics Examination Review Book. Vol I. Medical Examination Publishing Co., 1971.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 27

3. Orton, C.G. & Bagne, F. (eds.): Practical Aspects of Electron Beam Treatment Planning. American Institute of Physics, New York, 1978.
4. Orton, C.G. "Do you need to know the tolerance of normal tissues: Variations of the NSD Concept." Proc. of the Conf. on the Time-Dose Relationship in Clinical Therapy. (Ed. Caldwell and Tolbert), pp. 56-60, 1975.
5. Orton, C.G., Marshall, C.H. and Seibert, J.: Radiological Physics Examination Review Book, Volume II. Medical Examination Publishing Company, 1978.
6. Orton, C.G. Radiobiological Dose Rate Considerations with Remote Afterloading. In: "Recent Advances in Brachytherapy Physics" (Ed. D. Shearer), AAPM Monograph Number 7, American Institute of Physics, New York, 1981, pp. 190-200.
7. Orton, C.G. Radiobiological Dose Rate Considerations with Therapy" in Handbook of Medical Physics (Ed. Waggener, Kereiakes, and Shalek) CRC Press, Boca Raton, 1982, pp 265-293.
8. Orton, C.G. (ed): Progress in Medical Radiation Physics. Vol. 1. Plenum Publishing Corp. (1982)
9. Orton, C.G. "Time-Dose Models" in Advances in Radiation Therapy Treatment Planning (Ed. Wright and Boyer) AIP, New York, 1983, pp 27-63.
10. Orton, C.G. "Other Considerations in 3-Dimensional Treatment Planning," in Computerized Treatment Planning Systems (Ed. F. Bagne), HHS Publication FDA 84-8223, pp 136-141, 1984.
11. Powers, W.E., Maughan, R.L., Orton, C.G., Ragan, D.P., Blosser, H.G., Blosser, G.F., Burleigh, R.J. and Jemison, E.B. "A Neutron Therapy International Cyclotron Conference Proceedings, (Inst. of Electrical and Electronic Engin.) 431-435, 1984.
12. Orton, C.G. "Radiobiology Teaching" in Handbook of Medical Physics (ed. Waggener, Kereiakes, and Shalek), CRC Press, pgs. 93-110, 1984.
13. Orton, C.G. and Cohen, L. "A Variable Exponent TDF Model" in Optimization of Cancer Radiotherapy (Eds. Paliwal, Herbert, and Orton) AIP, New York, 1985, pp. 347-359.
14. Orton, C.G. (ed): Progress in Medical Radiation Physics. Vol. 2. Plenum Publishing Corp. (1985)
15. Orton, C.G. "Time, Dose, and Volume Models: General Review" in Optimization of Cancer Radiotherapy (Eds. Paliwal, Herbert, and Orton) AIP, New York, 1985, pp. 207-225.
16. Schultheiss, T.E. and Orton, C.G. "Volume Effects: Probability Model" in Optimization of Cancer Radiotherapy (Eds. Paliwal, Herbert, and Orton) AIP, New York, 1985, pp. 375-379.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 28

17. Schultheiss, T.E. and Orton, C.G. "Bioeffect Optimization: Decision Theory Model." Optimization of Cancer Radiotherapy (Eds. Paliwal, Herbert, and Orton) AIP, New York, 1985, pp. 471-477.
18. Maughan, R.L., Powers, W.E., Orton, C.G., Ragan, D.P., Blosser, H.G., Blosser, G.F., Burleigh, R.J., and Jemison, E.B. "A Superconducting Cyclotron for Neutron Radiotherapy." Proc. 5th Int. Symp. on Neutron Dosimetry, Neuherberg, Germany (Commission of the European Communities), 1984.
19. Blosser, H., Johnson, D., Milton, B., Riedel, J., Powers, W.E., Maughan, R.L., Orton, C.G., Ragan, D.P., Blosser, A.F., Burleigh, R.J., and Jemison, E.B. "Cyclotrons and Synchrocyclotrons for Oncology Therapy." Proceedings of the Fermilab Workshop on Charged Particle Therapy, Chicago, 1985.
20. Paliwal, B.R., Herbert, D.E., and Orton, C.G. (eds). Optimization of Cancer Radiotherapy. American Inst. of Physics, New York, 1985.
21. Orton, C.G. "Bio-Effect Dosimetry in Radiation Therapy." In: Radiation Dosimetry: Physical and Biological Aspects (ed. Orton), Plenum Publishing Corp., 1986, pp. 1-71.
22. Orton, C.G. (ed): Radiation Dosimetry: Physical and Biological Aspects. Plenum Publishing Corp. (1986)
23. Kereiakes, J.G., Thomas, S.R., and Orton, C.G. (eds). Physics in Digital Radiography. Plenum Publishing Corp. (1986).
24. Webster, E.W.,...Orton, C.G., et al. A Primer of Low-Level Ionizing Radiation and its Biological Effects. AAPM Report No. 18. American Institute of Physics, New York, (1986).
25. Orton, C.G. "A Unified Approach to Dose-Effect Relationships in Fractionated Radiotherapy" in Selected Topics in Physics of Radiotherapy and Imaging (Eds. Madhvanath et al), 1988, 25-30.
26. Orton, C.G. (ed): Dosimetria Delle Radiagioni: Aspetti Fisici e Biologici. Hoepli, Milano (1988).
27. Orton, C.G. "Biological Aspects of Combined Radiotherapy, Brachytherapy and Teletherapy." In: Changes in Brachytherapy, Ed. K. Rotte and J. Kiffer, Wachholz, Nureuberg, pp 7-14, 1989.
28. Orton, C.G. "Application of Dose-Effect Relationships to Intraoperative Radiotherapy." In: Intraoperative Radiation Therapy (Eds. R.R. Dobelbower and M. Abe), CRC Press, Boca Raton, pp 25-33, 1989.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 29

29. Orton, C.G. "...But Some are Useful." In: Prediction of Response in Radiation Therapy, Part 2: Analytical Models and Modelling (Ed. B.R. Paliwal et al), American Inst. of Physics, New York, pp. 381-386, 1989.
30. Paliwal, B.R., Fowler, J.F., Herbert, D.E., Kinsella, J.J., and Orton, C.G. (ed.) Prediction of Response in Radiation Therapy, Part I: The Physical and Biological Basis. American Inst. of Physics, New York, 1989.
31. Paliwal, B.R., Fowler, J.F., Herbert, D.E., Kinsella, J.J., and Orton, C.G. (ed.) Prediction of Response in Radiation Therapy, Part II: Analytical Models and Modelling. American Inst. of Physics, New York, 1989.
32. Martinez, A., Orton, C.G., and Mould, R.F. Brachytherapy: HDR and LDR, BPCC Hazell Books, Aylesbury, England, 1990.
33. Orton, C.G. "Remote Afterloading for Cervix Cancer: The Physicists' Point of View." In Brachytherapy HDR and LDR, Ed. Martinez, Orton and Mould, pp. 93-98, 1990.
34. Orton, C.G. "Biological Treatment Planning" In: Brachytherapy HDR and LDR, Ed. Martinez, Orton and Mould, pp. 205-215, 1990.
35. Orton, C.G. "High and Low Dose Rate Remote Afterloading: A Critical Comparison." In: Interventional Radiation Therapy Techniques: Brachytherapy, Ed. R. Sauer, Springer-Verlag, Heidelberg pp 53-57, 1991.
36. Orton, C.G. and Adams, C.D. "Radiological Physics." In: Encyclopedia of Physics, 2nd Ed., Eds. R.G. Lerner and G.L. Trigg, VCH Publishers, New York, 1991.
37. Orton, C.G. "Radiobiology: HDR vs. LDR." In: Brachytherapy in the Nordic Countries, Ed. R.F. Mould, Nucletron, The Netherlands, pp 1-7, 1992.
38. Ahmad, K., Orton, C.G., Kim, Y.H., and Porter, A.T. "Multifractionated HDR Brachytherapy for Cervical Carcinoma Using the Ahmad-Kim Positioner." In: Brachytherapy in the Nordic Countries, Ed. R.F. Mould, Nucletron, The Netherlands, pp 101-104, 1992.
39. Orton, C.G., Ahmad, K., Alekhteyar, K.M., and Porter, A.T. "Brachytherapy for Cancer of the Cervix: Detroit Experience." In: Brachytherapy in the Nordic Countries, Ed. R.F. Mould, Nucletron, The Netherlands, pp. 105-110, 1992.
40. Orton, C.G. "Comparison of High and Low Dose Rate Remote Afterloading and the Importance of Fractionation." In: Proceeding of the 7th International Brachytherapy Conference, Luzern, Switzerland. Health Service Consultants, Maine, p. 40, 1992.
41. Orton, C.G. and Somnay A. "Results of an International Review on Patterns of Care in Cancer of the Cervix." In: International Brachytherapy, Ed. R.F. Mould, pp 5-9, 1992.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 30

42. Orton, C.G. "Mathematical Models in Radiobiology." In: International Brachytherapy, Ed. R.F. Mould, pp. 35-37, 1992.
43. Orton, C.G. "Cancer Incidence in the USA with Special Reference to Tumour Sites Treated with Brachytherapy." In: International Brachytherapy, Ed., R.F. Mould, pp. 550-555, 1992.
44. Orton, C.G. "Fast Neutron Radiotherapy: Principles and Practice." In: Advances in Radiation Oncology Physics (Ed. J.A. Purdy), American Inst. of Physics, New York, pp. 29-52, 1992.
45. Orton, C.G. "Update on Time-Dose Models" In: Advances in Radiation Oncology Physics (Ed. J.A. Purdy), American Inst. of Physics, New York, pp. 374-389, 1992.
46. Orton, C.G. "Issues in HDR." In Prediction of Response in Radiation Therapy: Radiosensitivity and Repopulation, Eds. Paliwal et al., Amer. Institute of Physics, Colchester, VT, pp. 286-289, 1993.
47. Thomadsen, B., Orton, C.G. et al. The Role of a Physicist in Radiation Oncology, AAPM Report No. 38. American Institute of Physics, New York, 1993.
48. Herbert, D.F., Schultheiss, T., Orton, C.G. et al. Quality Assessment and Improvement of Dose Response Models, AAPM Report NO. 43, MPPC, Madison, 1993.
49. Orton, C.G. Brenner, D.J., Dale, R.G., and Fowler, J.F. "Radiobiology." In High Dose Rate Brachytherapy: A Textbook, ed. S. Nag, Futura, Armonk, New York, 11-25, 1994.
50. Orton, C.G. "Medical Physics: A Very Healthy Profession." In: Physical Sciences Career Directory, Gale Research Inc., Detroit, pp. 35-38, 1994.
51. Orton, C.G., Somnay, A. "Results of an International Review of Patterns of Care in Cancer of the Cervix." In: Brachytherapy from Radium to Optimization, Eds. Mould, R.F., Battermann, J.J., Martinez, A.A., Speiser, B.L. Nucletron, The Netherlands, 1994, pp. 49-54.
52. Orton, C.G. "Mathematical Models." In: Brachytherapy from Radium to Optimization, Eds. Mould, R.F., Battermann, J.J., Martinez, A.A., Speiser, B.L. Nucletron, The Netherlands, 1994, pp. 34-38.
53. Orton, C.G. "Radiobiology in Brachytherapy: Biologic Aspects and Practical Application." In: RSNA Categorical Course in Brachytherapy Physics, B. Thomadsen (Ed), RSNA, Oak Brook, Illinois, 51-65, 1997.
54. Orton, C.G. "Radiobiology." In: Principles and Practice of Brachytherapy, Ed. S. Nag Futura, Armonk, New York, 27-45, 1997.
55. Orton, C.G. "Fractionation: Radiobiological Principles and Clinical Practice." In: Treatment Planning in Radiation Oncology, Khan, F.M. and Potish, R.A. (eds), Baltimore, Williams & Wilkins, 295-318, 1998.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 31

56. Orton, C.G. and Ezzell, G.A. "Physics and Dosimetry of High Dose Rate Brachytherapy" In: Principles and Practice of Radiation Oncology (3rd Edition), Perez and Brady (eds.) J.B. Lippincott, Philadelphia 469-485, 1998.
57. Hogstrom, K.R., Orton, C.G., et al. "Survey of Physics Resources for Radiation Oncology Special Procedures: ACMP, Reston, VA (1998).
58. Hogstrom, K.R., Orton, C.G., et al. "Supplement to Survey of Physics Resources for Radiation Oncology Special Procedures: ACMP, Reston, VA (1998).
59. Abitbol, A., Nag, S, Hsu, I-C, Pouliot, J, Lewin, A., and Orton, C.G. "High Dose Rate Brachytherapy. In: Textbook of Radiation Oncology, Leibel and Phillips (eds), Saunders, 1998.
60. Orton, C.G. "Emerging New Technologies on Radiation Oncology." In: Advances in Medical Physics, Rehani, M.M. (Ed.), Jaypee Brothers, New Delhi, 1-12, (1999).
61. Brenner, D., Dale, R., Orton, C.G., Fowler, J. "Modeling HDR, LDR and PDR." In: Brachytherapy, Joslin, Hall and Flynn (Eds), Chapman and Hall, London (2001).
62. Orton, C.G. "Radiobiology". In: Brachytherapy in the New Millennium (ed. Nag, S.). Armonk, NY, Futura Pub. Corp. (In Press).
63. Orton, C.G. and Adams, C.D. "Radiological Physics." In: Encyclopedia of Physics, 3rd Ed., Eds. R.G. Lerner and G.L. Trigg, VCH Publishers, New York, 2005.
64. Orton, C.G. "Medical Physics Literature". In: Encyclopedia of Medical Devices and Instrumentation, Ed. J. Webster, Wiley, New Jersey, Vol. 4, 335 – 351, 2005.
65. Orton, C.G. and Ezzell, G.A. "Physics and Dosimetry of High Dose Rate Brachytherapy" In: Principles and Practice of Radiation Oncology (4th Edition), Perez, Brady, Halperin and Schmidt-Ullrich (eds.) J.B. Lippincott, Philadelphia 604-618, 2004.
66. Abitbol, A., Nag, S, Hsu, I-C, Pouliot, J, Lewin, A., and Orton, C.G. "High Dose Rate Brachytherapy. In: Textbook of Radiation Oncology, 2<sup>nd</sup>. Edition, Leibel and Phillips (eds), Saunders, 293-321, 2004.
67. Orton, C.G. "Fractionation: Radiobiological Principles and Clinical Practice." In: Treatment Planning in Radiation Oncology, 2<sup>nd</sup>. Edition, Khan, F.M. and Potish, R.A. (eds), Baltimore, Williams & Wilkins, In Press.
68. Orton, C.G. "Medical Physics Literature". In: Encyclopedia of Medical Devices and Instrumentation, 2<sup>nd</sup>. Edition, Ed. J. Webster, Wiley, New Jersey, 335 – 351, 2006.
69. Orton, C.G. and Hendee, W.R. "Controversies in Medical Physics". AAPM College Park MD, 2008 [<http://www.aapm.org/pubs/books>].

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 32

## **2. Review Articles**

1. Orton, C.G. "Fundamental Biophysical Aspects of High-Energy Radiations in Cancer Therapy." Transactions of the N.Y. Academy of Sciences 36:545-560, 1974.
2. Orton, C.G. "A Survey of HDR Regimes used for Cervix Cancer Radiotherapy." Proceedings of the "25 years of High Dose Rate Remote Afterloading" Conference, Health Service Consultants, Maine, 52-60, 1990.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 33

### **Presentations**

1. Blum, M., Orton, C.G., Rose, L. "The Effect of Starch Ingestion on Excessive Iron Absorption." Presented at the Forty-Ninth Annual Session of the American College of Physicians, Boston, 1968.
2. Nussenzweig, R., Vanderberg, J., Orton, C.G., Most, H. "Degree and Specificity of Protection Obtained by Vaccination with X-irradiated Sporozoites of Plasmodium Berghei." Presented at the International Congress of Malaria and Tropical Medicine, Teheran, Sept. 1968.
3. Orton, C.G. "Preliminary Report of an Experimental Study with Gold-198 Colloid for Intrathecal and Intraventricular Therapy." Presented at the Third Annual Meeting of the Southeastern Chapter of the Society of Nuclear Medicine, Atlanta, Oct. 1968.
4. Orton, C.G., Busemann, E. "Initial Fading Characteristics of LiF-Teflon Microrods." Presented at the Second International Conference on Luminescence Dosimetry, Sept. 23-26, 1968.
3. Nussenzweig, R., Vanderberg, J., Orton, C.G., Most, H. "Active Immunization Against Rodent Malaria with Irradiated Sporozoites." Presented at the Section of Micro and Molecular Biology Conf., New York Academy of Medicine. New York, Oct. 1968.
4. Orton, C.G. "Intrathecal Therapy with Colloidal Gold-198 in Experimental Animals and Man." Presented at the Greater New York Chapter Meeting of the Society of Nuclear Medicine, Nov. '68
6. Orton, C.G., Busemann, E., Seibert, J., Testa, E. "Comparison of Personnel Exposure from Isotopes used in Brachytherapy." Presented at the Second International Conference of Medical Physics, Boston, Aug. 1969. Phys. Med. Biol. 15:219-220, 1970 (abs.).
7. Orton, C.G., Seibert, J. "The Effect of Oblique Incidence on Skin Sparing for Co-60 Radiation." Presented at the AAPM 12th Annual Meeting, Washington, July 1970. AAPM Quarterly Bulletin 4, No. 2, 66-67, 1970 (abs.); Phys. Med. Biol. 16:165, 1970 (abs.).
8. Marshall, C.H., Orton, C.G., Schweizer, R.D. "The Dependence of Mean Dose to Body Organs on the Relative Orientation of Patient and Tube in X-ray Diagnosis." Presented at the AAPM 13th Annual Meeting, Houston, July 1971. AAPM Quarterly Bulletin, No. 2:5, 1971 (abs.).
9. Milvey, P., Orton, C.G., Seibert, J., Kaufman, L. "Low Temperature Response of LiF-Teflon Dosimeters." Presented at the 20th Annual Meeting of the Radiation Research Society, Oregon, May 1972.
10. Orton, C.G., Seibert, J. "Inherent Nonlinearity of Victoreen R-Meters." Presented at AAPM Winter Meeting, Chicago, Dec. 1972. AAPM Quart. Bull. 6:187, 1972 (abs.); Phys. Med. Biol. 18:583, 1973 (abs.).

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 34

10. Orton, C.G., Seibert, J.B., Newall, J. "Skin Sparing and the Optimal Utilization of Bolus in Tangential Breast Radiotherapy." Presented at the 13th Int. Congress of Radiology, Madrid, Oct. 1973.
11. Orton, C.G. "Biological Effects of Ionizing Radiation." Presented at Annual Meeting of the New Jersey Society of Radiologic Technologists, Atlantic City, June 1973.
12. Orton, C.G., Ellis, F. "A Simplification in the Use of the NSD Concept in Practical Radiotherapy." Presented at the 13th Int. Congress of Radiology, Madrid, Oct. 1973. Also presented as an Exhibit at the 15th Annual Meeting of the Am. Assoc. of Physicists in Medicine, San Diego, Aug. 1973 (awarded first prize).
13. Orton, C.G. "NSD Made Easy." Presented at the Annual Meeting of the Radiological Society of North America, Chicago, Nov. 1973.
14. Orton, C.G. "Fundamental Biophysical Aspects of High-Energy Radiations in Cancer Therapy." Presented at the New York Academy of Sciences, Biophysics Section, Dec. 1973. Transactions of the N.Y. Academy of Sciences 36:545-560, 1974.
15. Orton, C.G. "The NSD Concept." Presented at the AAPM Delaware Valley Chapter Symposium, May 1974.
16. Orton, C.G. "Practical Use of NSD." Presented to the New York Roentgen Society Radiotherapy Club, June 1974.
16. Orton, C.G. "Do You Need to Know the Tolerance of Normal Tissues? Variations of the NSD Concept." Presented at the Time-Dose Relationships in Clinical Radiotherapy Conference, Wisconsin, October, 1974.
17. Loevinger, R., Orton, C.G., Shalek, R.J. "Equipment for Therapy Beam Calibration." Presented at the 16th AAPM Annual Meeting, Kansas City, August 1974. Medical Physics, 1:116, 1974 (abs.).
18. Orton, C.G. "Time-Dose Relationships." Presented at the Physics in External Beam Radiation Therapy Symposium, Memorial Hospital, New York, March 1975.
19. Orton, C.G. "Apples and Oranges?" Presented to the N.E. Society for Radiation Oncologists, Dec. 1975.
20. Orton, C.G. "A Survey of Time-Dose Relationships in Radiotherapy." Presented at the Medical Physics Seminar Series, Dartmouth-Hitchcock Medical Center, New Hampshire, Sept. 1975.
21. Orton, C.G. "Planning for Cure." Presented at the Concepts of Cure Symposium, Rhode Island Hospital, June 1976.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 35

22. Orton, C.G. "Is High-LET Radiotherapy a Realistic Alternative to Hypoxic Cell Sensitization?" Presented at the Sensitization of Hypoxic Cells in Cancer Radiotherapy Symposium, Rhode Island Hospital, June 1976.
23. Orton, C.G. "Time-Dose Concepts: A Review." Presented at the Joint Meeting of the N.J. Acad. Med. Radiotherapy Section and the N.J. Medical Physics Society, New Jersey, March 1976.
24. Orton, C.G. "Biological Importance of Dose Rate in Permanent Implant Dosimetry." Presented at the "Fourth International Conference on Medical Physics", Ottawa, July 1976.
25. Orton, C.G. "Minimizing the Hazards of Radiation." Presented at the 18th Annual Meeting of the New England Conference of Radiologic Technologists, Portsmouth, N.H., September 1976.
26. Orton, C.G. "Dangers of Radiation." Presented to the Rhode Island Society of Radiol. Techs., October 1976.
27. Orton, C.G. "Practical Time-Dose Concepts in Radiotherapy." Presented at the Medical Physics Seminar Series, Harvard Univ., Boston, April 1977.
28. Orton, C.G. "Radiobiological Aspects of Treatment Planning." Presented at the "Integrated Oncology" Symposium, Rhode Island Hospital, April 1977.
29. Glicksman, A.S., Orton, C.G. "Benefits and Evils of Mammography." Presented at the Obstetrical and Gynecological Travel Club 56th Annual Meeting, Providence, September 1977.
30. Orton, C.G. "Combined External and Brachytherapy in Gynecological Cancer." Presented at the GYN Radiation Oncology Meeting of the N.E. Soc. Rad. Oncol., Maine, October 1976.
31. Orton, C.G. "Computers in Radiotherapy." Presented at the 13th Annual Radiotherapy Postgraduate Course, Williamsburg, Va., February 1977.
24. Orton, C.G. "The Optimal Use of Therapy Simulators." Presented at the 13th Annual Radiotherapy Postgraduate Course, Williamsburg Va, February 1977.
32. Orton, C.G. "Present and Future of Medical Physics as a Profession." Presented at the Allied Health Program Seminar, Fairleigh Dickinson University, April 1977.
33. Greenberg, J., Fischer, M., Hadesman, R., Orton, C.G. "Film Dosimetry and Cancer Radiotherapy." Presented at the 31st Eastern Colleges Science Conference, New Jersey, April 1977.
34. Sum, J., Shearer, D., Orton, C.G. "Development of Techniques for Monitoring Iodine-125 Thyroid Burdens." Presented at the 31st Eastern Colleges Science Conference, New Jersey, April 1977.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 36

35. Orton, C.G. "Time, Dose, and Volume Relationships as They Apply to Clinical Radiotherapy." Presented at the Medical Physics Seminar Series, University of Cincinnati, May 1977.
36. Orton, C.G. "Recent Thoughts about Biological Modeling in Treatment Planning." Presented at the Harvard Medical School Seminar Series on the "Physics of Treatment Planning", November 1977.
37. Orton, C.G. "The Concept of Dose in Radiotherapy." Presented at the Radiotherapy for Medical Oncologists Workshop, 14th Annual Meeting of the American Society of Clinical Oncology, Washington, D.C., April 1978.
30. Orton, C.G. "Gynecological Treatment Planning and Devices." Presented at The New England Society for Radiation Oncology and AAPM New England Chapter Annual Meeting, Portland, Maine, May 1978.
31. Reinstein, L.R., McShan, D.L., Orton, C.G. "Automatic Direct TMR Measurement." Presented at the 20th Annual Meeting of the American Association of Physicists in Medicine, San Francisco, August 1978. Medical Physics 5, 320, 1978 (abs.).
32. Reinstein, L.R., Orton, C.G. "Contrast Enhancement of High Energy Radiotherapy Films." Presented at the 20th Annual Meeting of the American Association of Physicists in Medicine, San Francisco, August 1978, Medical Physics 5, 332, 1978 (abs.) Also presented as an exhibit (awarded 1st prize).
33. Wolf, S., Reinstein, L.E., Orton, C.G. "Dosimetric Properties of Small Electron Fields." Presented at the 20th Annual Meeting of the American Association of Physicists in Medicine, San Francisco, August '78. Medical Physics 5, 345-346, '78 (abs).
34. Orton, C.G. "Factors Affecting Complications in Treatment of GYN Carcinomas." Presented at the 20th Annual New England Conference of Radiologic Technologists, Providence, Sept 1978.
35. Orton, C.G. "Biomedical Effects of Radiation." Presented at the Hanford "Health and Safety" Seminar. Hanford, Washington, August 1978.
36. Orton, C.G. "Radiobiological Criteria used to Evaluate Radiotherapy Regimes." Presented at the "Advances in Radiotherapy and Radiobiology" Symposium, Mexico City, September 1978.
37. Orton, C.G. "Time, Dose, and Fractionation Relationships." Presented at the "Advances in Radiotherapy and Radiobiology" Symposium, Mexico City, September 1978.
38. Orton, C.G., Wolf, S., Steinfeld, A.D. "TDF Analysis of Complications in Ca Cervix Treatments." Presented at the 20th Annual Meeting of the ASTRO, Los Angeles, 1978. Int. J. Radn. Onc., Biol., Physics, Vol. 4, Supp. 2, p.158, 1978 (abs).



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 37

39. Orton, C.G., Reinstein, L.E. "Contrast Enhancement of Radiotherapy Portal Films and Potential Further Application to Diagnostic Films." Presented to the Radiological and Medical Physics Society, New York, November 1978.
40. Orton, C.G. "Treatment Planning for Breast Radiotherapy." Presented at the New England Society of Radiation Therapy Technologists, Providence, Rhode Island, January 1979.
41. Orton, C.G., Steinfeld, A.D., Wolf, S. "Specification of Dose with Respect to Complications in Ca Cervix Treatments." Presented at the New England Society for Radiation Oncology, Spring Meeting March 1979.
42. Orton, C.G. "Atomic Radiation and Life." Presented at a Public Forum, Brown University, April 1979.
43. Orton, C.G. "Some New Concepts in Optimizing Radiotherapy for Carcinoma of the Cervix." Medical Physics Lecture Series, Tufts-New England Medical Center, Boston, May 1979.
44. Orton, C.G. "Workshop on NSD-Type Models." Medical Physics Lecture Series, Tufts-New England Medical Center, Boston, May 1979.
45. Orton, C.G. "Nuclear Energy Conversion Systems." University of Rhode Island NSF Summer Program on the Science and Technology of Energy Conversion Systems, June 1979.
46. Orton, C.G. "Nuclear Power: Its Effect on the Body and Health and its Role in the Energy Ecosystem." Presented to the Rhode Island College Nursing Club, September 1979.
47. Orton, C.G. "Radiobiological Dose Rate Considerations with Remote Afterloading." Presented at the "Recent Advances in Brachytherapy Physics" Workshop, Sturbridge, Mass., Oct 1979.
48. Orton, C.G. "Nuclear Power." Presented to the Rhode Island Society of Radiologic Technologists, November 1979.
49. Orton, C.G. "Research in Medical Physics in the New England Area: An Overview." Presented to the AAPM New England Chapter, March 1980.
50. Orton, C.G. "Clinical Models: The Therapy Composite." Presented at the "Models and the Practice of Radiotherapy and Chemotherapy" CALGB Workshop, New York, April 1980.
51. Orton, C.G. "Impact of Radiobiological Models on the Practice of Radiotherapy." Presented at the Brown University, Section on Radiation Medicine, Seminar Series, April 1980.
52. Orton, C.G. "Time-Dose Relationships." Presented at the University of Kentucky Radiation Therapy Seminar Series, April 1980.
53. Orton, C.G. "ALARA, Public Education and Low-Level Waste." Presented at the Spring Meeting of the AAPM and HPS Regional Chapters, Lexington, Kentucky, April 1980.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 38

54. Orton, C.G. "Dose and Volume Considerations for Interstitial and External Beam Treatment." Presented at the NESRO/AAPM Annual Meeting; Newport, R.I., June 1980.
55. Orton, C.G. "Biological Hazards Associated with Nuclear Energy." Presented at the University of Rhode Island NSF Summer Program on the Science and Technology of Energy Conversion Systems, June 1980 and July 1980.
56. Orton, C.G. "Low Level Radiation: What do We Say To Patients?" Presented at the New England Conference on Radiologic Technologists, Hartford, Connecticut, September 1980.
57. Orton, C.G. "The Radioactive Waste Problem." Presented to the Rhode Island Society of Nuclear Medicine, January 1981.
58. Orton, C.G. "Status Report and Future Plans for the AAPM." Presented at the Joint Meeting of the Mid-West and North-Central Chapters of the AAPM, February, 1981 (Chicago).
59. Orton, C.G. "Radiation Risks in Perspective." Presented at the Mercy Hospital and Medical Center, Chicago, Seminar Series, April 1981.
60. Orton, C.G. "7-D Treatment Planning." Guest Speaker at the Mercy Hospital and Medical Center, Chicago, Seminar Series, April 1981.
61. Orton, C.G. "Considerations in 3-Dimensional Treatment Planning." Presented at the "Computerized Treatment Planning Systems" Symposium, Detroit, April 1981.
62. Dutkowsky, J., Shearer, D., Schepps, B., Orton, C.G. "Dose Reduction in Routine Scoliosis Radiography." Presented at the 8th Annual Research Day, Brown University, May 1981.
63. Orton, C.G. "Radiotherapy Treatment Optimization with Conventional Equipment." Presented at the NW Center for Radiological Physics Seminar Series, Seattle, May 1981.
64. Orton, C.G. "AAPM: Present and Future." Presented at the NW Chapter AAPM Meeting, Portland, Oregon, May 1981.
65. Orton, C.G. "Radiation, Past, Present, and Future." Presented at the Annual Meeting of the Radiological and Medical Physics Society, New York, May 1981.
66. Orton, C.G. "Practical Aspects of the Application of Time-Dose Relationships in Radiotherapy." Presented to the American Society of Radiological Technologists, Miami Beach, October 1981.
67. Orton, C.G. "Biological Effects of Low Doses of Radiation." Presented at the Physics Seminar Series, Oakland University, Michigan, November 1981.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 39

68. Orton, C.G. "Intracavitary and External Beam Therapy for Gynecologic Malignancies." Presented at the Michigan Association of Radiation Therapy Technologists Fall Seminar, Detroit, November 1981.
69. Orton, C.G., Haas, J. "Electron-Beam Radiation Therapy" Presented at the Detroit Medical Center Oncology Grand Rounds, December 1981.
70. Orton, C.G. "Recent Advances in Radiation Therapy." Presented at the "Foreign Visiting Professors Program," Hospital de Oncologia del Centro Medico Macional, Mexico City, February 1982.
71. Orton, C.G. "Optimization of Ca Cervix Treatment Planning." Presented at the Gadeski Visiting Professorship Seminar, Edmonton, Alberta, March 1982.
72. Orton, C.G. "Where Are We Going in the Next 10 years in Radiotherapy?" Presented at the meeting of the Great Lakes Chapter of the Health Physics Society, Detroit, Michigan, March 1982.
73. Orton, C.G. "Biological Effects of Nuclear Energy." Presented at the Nuclear Energy Panel, Brown University, April 1982.
74. Orton, C.G. "New Modalities in Radiation Therapy" Presented at the Detroit Medical Center Oncology Grand Rounds, May 1982.
75. Orton, C.G. Krohmer, J. "Establishment of an American College of Medical Physics." Presented to the AAPM Ohio River Valley Chapter, Dayton, Ohio, June, 1982.
76. Orton, C.G. "Time-Dose Factors". Presented at the AAPM Summer School, Louisiana, July, 1982.
77. Herron, D.S., Orton, C.G., Kuntzler, C.M. "Minimization of Fetal and Gonadal Doses in Radiotherapy". Presented at the World Congress on Medical Physics and Biomedical Engineering, Hamburg, September, 1982.
78. Orton, C.G. "Optimization of Ca Cervix Dose Prescription". Presented at the World Congress on Medical Physics and Biomedical Engineering, Hamburg, September, 1982.
79. Orton, C.G. "Applications of Physics to the Development of New Modalities in Radiotherapy". Presented at the Physics Seminar Series, Wayne State University Physics Department, December, 1982.
80. Orton, C.G. "Inhomogeneity Corrections in Radiotherapy." Presented at the Eastern Virginia Medical College, Norfolk, VA, January, 1983.
81. Orton, C.G. "Compensation for Victims of Low Level Exposure to Radiation." Presented to the Great Lakes Chapter, Health Physics Society, Midland, MI, February, 1983.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 40

82. Orton, C.G. "Time-Dose Models." Presented at the Second Annual Radiation Therapy Technology Seminar (Geisinger Medical Center), April, 1983.
83. Orton, C.G. "Fractionation in Radiotherapy: Some New Concepts". Presented at the Colorado State University, Radiation Biology Seminar Series, Fort Collins, June, 1983.
84. Orton, C.G., Spicka, J.T., Herron, D.S., Herskovic, A.M., and Mondalek, P.M. "Lung Corrections in Photon Beam Treatment Planning: Are We Ready?" Presented at the 25th AAPM Annual Meeting, New York, August, 1983.
85. Spicka, J.T., Orton, C.G., Herron, D.S. "Portal Verification Films for High Energy Electron Therapy", Presented at the 25th AAPM Annual Meeting, New York, August, 1983.
86. Spicka, J.T., Vitalis, T., Herron, D., and Orton, C.G. "Improved Dosage Calculations for Total Body Radiotherapy," Presented at the 25th AAPM Annual Meeting, New York, August, 1983.
87. Orton, C.G., Powers, W.E., Andres, L., and Schultheiss, T. "Bio-Effect Planning for Optimization of Combined Intracavitary/External Beam Ca Cervix Treatments." Presented at the 25th AAPM Annual Meeting, New York, August, 1983.
88. Spicka, J., Herron, D., Orton, C.G., and Hardybala, S. "Separating Output Factor into Collimator Factor and Backscatter Factor for Megavoltage Photon Dosage Calculations." Presented at the 25th AAPM Annual Meeting, New York, August, 1983.
89. Orton, C.G., Herron, D., Spicka, J., and Orton, B.G. "Impact of a Comprehensive Radiotherapy Quality Assurance Program." Exhibit at the 25th AAPM Annual Meeting, New York, August, 1983.
90. Schultheiss, T., Orton, C.G., and El-Mahdi, A.M. "An Evaluation of the Clinical Importance of Density Corrections in Radiotherapy." Exhibit at the 25th AAPM Annual Meeting, New York, August, 1983.
91. Maughan, R., Orton, C.G., and Ragan, D. "Superconducting Cyclotron for Neutron Therapy." Presented at Great Lakes Chapter AAPM Meeting, October, 1983.
92. Orton, C.G., Herskovic, A.M., Spicka, J.T., Herron, D.S., and Mondalek, P.M. "Lung Corrections are Essential in Clinical Trials." Presented at the 25th ASTR Annual Meeting, Los Angeles, October, 1983.
93. Orton, C.G. "Lung Corrections in Photon Beam Treatment Planning" Presented at the Biomedical Engineering seminar, University of Wisconsin, Madison, October 24, 1983.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 41

94. Orton, C.G. "Bio-Effect Planning for Optimization of Combined Intracavitary/External Beam Ca Cervix Treatments." Presented at the Grand Rounds in Human Oncology, University of Wisconsin, Madison, October 26, 1983.
95. Herron, D.S., Orton, C.G., Spicka, J.T., Andres, L.I., and Powers, W.E. "Brachytherapy Quality Control." Presented at the 69th RSNA Annual Meeting; November, 1983 (Radiology, 149 (P):85, 1983 (abstract)).
96. Johnson, M. and Orton, C.G. "Improved Quality of Radiographic Images in Therapy." Presented at the Annual Meeting of HPS Great Lakes Chapter, Ann Arbor, Michigan, February, 1984.
97. Kuntzler, C., Herron, D., and Orton, C.G. "Minimization of Fetal Doses in Radiotherapy." Presented at the Annual Meeting of the HPS Great Lakes Chapter, Ann Arbor, Michigan, February, 1984.
98. Orton, C.G. "Are there Radiation Hazards from Video Display Terminals and Televisions." Presented at the HPS Great Lakes Chapter Spring Symposium, Dearborn, Michigan, April, 1984.
99. Orton, C.G. "Reflections on the Future of Medical Physics" Presented at the Annual Meeting of the Radiological and Medical Physics Society, New York, June, 1984.
100. Johnson, M.W., and Orton, C.G. "Study of Portal Film Techniques" Presented at the 26th AAPM Annual Meeting, Chicago, July, 1984.
101. Maughan, R.L., Powers, W.E., Orton, C.G., Ragan, D.P., Blosser, H.G., Blosser, G.F., Burleigh, R.J., and Jemison, E.B. "A Superconducting Cyclotron for Neutron Radiotherapy." Presented at the 26th AAPM Annual Meeting, Chicago, July, 1984.
102. Maughan, R.L., Powers, W.E., Orton, C.G., Ragan, D.P., Blosser, H.G., Blosser, G.F., Burleigh, R.J. and Jemison, E.B. "A Superconducting Cyclotron for Neutron Radiotherapy." Presented at the Fifth Symposium on Neutron Dosimetry, Neuherberg, W. Germany, Sept. 1984.
103. Orton, C.G. "Time, Dose, and Volume Models: General Review." Presented at the 2nd Int. Conf. on Dose, Time and Fractionation in Radiation Oncology. Madison, Wisconsin, Sept. 1984.
104. Orton, C.G. and Cohen, L. "A Variable Exponent TDF Model." Presented at the 2nd Int. Conf. on Dose, Time and Fractionation in Radiation Oncology. Madison, Wisconsin, Sept. 1984.
105. Schultheiss, T.E. and Orton, C.G. "Volume Effect: Probability Model." Presented at the 2nd Int. Conf. on Dose, Time and Fractionation in Radiation Oncology. Madison, Wisconsin, Sept. 1984.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 42

106. Schultheiss, T.E. and Orton, C.G. "Bioeffect Optimization: Decision Theory Model." Presented at the 2nd Int. Conf. on dose, Time and Fractionation in Radiation Oncology. Madison, Wisconsin, Sept. 1984.
107. Orton, C.G. "Radiation - A Two-Edged Sword." Presented to the Michigan Academy of Physician Assistants, Ann Arbor, Michigan, November, 1984.
108. Orton, C.G. "Mathematical Approaches to Determine Equivalent Doses in Fractionated Radiation Therapy." Presented at Radiation Oncology Seminar Series, Henry Ford Hospital, January, 1985.
109. Orton, C.G. "Time-Dose Strategies and Radiation Therapy Optimization." Presented at the Radiation Oncology Residents' Day, Indiana University, June, 1985.
110. Orton, C.G. "Treatment Planning for Lung Cancer." Presented at the Scientific Session on Lung Cancer, RTOG Annual Meeting. Philadelphia, July, 1985.
111. Orton, C.G. "New Imaging Modalities and their Impact on Treatment Planning." Presented at the Radiology Scientific Session, RTOG Annual Meeting. Philadelphia, July, 1985.
112. Powers, W.E., Maughan, R.L., Orton, C.G., Ragan, D.P., Blosser, H.G., Blosser, G.F., Burleigh, R.J., and Jemison, E.B. "A Superconducting Cyclotron for Neutron Therapy." Presented at the 27th Annual ASTRO Meeting: Miami, October, 1985.
113. Orton, C.G. "Quality Assurance and its Impact upon Malpractice." Presented at the Nov. 1985 MSTR Meeting, Detroit.
114. Dryden, D.A. and Orton, C.G. "A Comparison of the Accuracy, Cost and Efficiency of Patient Contouring Methods Commonly used in Radiation Therapy Treatment Planning." Presented at the HPS Great Lakes Chapter, Spring Symposium, April, 1986.
115. Orton, C.G. "Lung Corrections in Treatment Planning," presented at the Radiation Oncology Seminar Series, Tufts-New England Medical Center, Boston, May, 1986.
116. Orton, C.G. "TDF: Applicability to Intraoperative Radiation Therapy," presented at the Intraoperative Radiation Therapy International Symposium, Toledo, Ohio, May, 1986.
117. Orton, C.G. "Certification of Medical Physicists: Credentials." Presented at the 3rd Annual ACMP Meeting, French Lick, Indiana, August, 1986.
118. Orton, C.G. "Time Dose Relationships in Brachytherapy." Presented at the 3rd Annual Endocurietherapy Symposium, Gatlinburg, Tennessee, August, 1986.
119. Orton, C.G. "Physical and Biological Aspects of Remote Afterloading." Presented at the 3rd Annual Endocurietherapy Symposium, Gatlinburg, Tennessee, August, 1986.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 43

120. Orton, C.G. "Current Topics in Radiotherapy." Radiological Health Seminar, Univ. of Michigan, Sept. 1986.
121. Orton, C.G. "A Critical Comparison of High and Low Dose Rate Treatments of Gynecological Cancers." Presented at the 4th International Selectron Users Meeting, Vancouver, Sept. 1986.
122. Orton, C.G. "High Dose Rate Afterloading." Presented at the Beaumont Hospital Radiation Oncology Seminar Series, October, 1986.
123. Orton, C.G. "New Imaging Modalities and Their Impact on Treatment Planning." Presented at the ASRT/ASTRO Annual Meeting, Los Angeles, November, 1986.
124. Orton, C.G. "A Unified Approach to Dose-Effect Relationships in Fractionated Radiotherapy." Presented at the Asian Regional Conference on Medical Physics, Bombay, December, 1986.
125. Orton, C.G. "Concepts of Time, Dose and Fractionation in Radiation Therapy." Presented at the Asian Regional conference on Medical Physics, Bombay, December, 1986.
126. Orton, C.G. "Unconventional Fractionation." Presented at the VIII the Congress of the Association of Radiation Oncologists of India, Bombay, December, 1986.
127. Orton, C.G. "Physical and Biological Rationales for High Dose-Rate Remote Afterloading." Presented at the VIII th Congress of the Association of Radiation Oncologists of India, Bombay, December, 1986.
128. Orton, C.G. "Impact of Radiobiology on Radiation Oncology." Presented at the Radiation Oncology Seminar Series, Sher-I-Kashmir Inst. of Medical Sciences, Srinagar, India, December 1986.
129. Orton, C.G. "Education and Certification of Hyperthermia Physicists." Presented at the 7th Annual Meeting of the North American Hyperthermia Group, Atlanta, February 1987.
130. Orton, C.G. "Unified TDF and Linear-quadratic Models for Fractionated Radiotherapy and Brachytherapy." Presented at the 35th Annual Meeting of the Radiation Research Society, Atlanta, February 1987.
131. Orton, C.G. "Optimizing Radiotherapy for Carcinoma of the Cervix." Presented at the 7th Annual Current Approaches to Radiation Oncology, Biology and Physics Course, San Francisco, March, 1987.
132. Orton, C.G. "Treatment Planning for Head and Neck Cancer Radiotherapy." Presented at the Head and Neck Tumor Conference, Detroit Medical Center, March, 1987.
133. Orton, C.G. "Correction for Tissue Inhomogeneity." Presented at the 7th Annual Current Approaches to Radiation Oncology, Biology and Physics Course, San Francisco, March, 1987.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 44

134. Orton, C.G. "Lung Correction." Presented to the San Francisco Bay Chapter of the AAPM, March, 1987.
135. Orton, C.G. "Applications of Time/Dose Relationships to Radiotherapy Problems." Presented at the Visiting Professor Lecture Series, State University of New York at Stony Brook, April, 1987.
136. Orton, C.G. "Physical and Biological Aspects of High Dose Rate Endobronchial Radiotherapy." Presented at the 2nd Annual Endobronchial Radiation and Laser Therapy Symposium, New Orleans, May, 1987.
137. Orton, C.G. "Design of High Dose Rate Afterloading Protocols Using Time-Dose Models." Presented at the 2nd International High Dose Rate Remote Afterloading Symposium, Baltimore, May, 1987
138. Orton, C.G. "The Expert Witness in Radiotherapy." Presented at the 4th Annual ACMP Meeting, Bay City, Michigan, July 1987.
139. Campbell, J.M., Ezzell, G.A., Herron, D., Powers, W.E. and Orton, C.G. "Coded Dummy Strands for Treatment Planning of Ir-192 Implants." Presented at the 29th Annual AAPM Meeting, Detroit, July 1987.
140. Ezzell, G.A., Campbell, J.M., Mesina, C.F., and Orton, C.G. "A Practical Tissue Compensator System: Dosimetric Evaluation and Quality Control Procedures." Presented at the 29th Annual AAPM Meeting, Detroit, July 1987.
141. Orton, C.G. "Critical Comparison of High and Low Dose-Rate Brachytherapy." Presented at the Medical Physics Seminar Series, Harper Hospital, September, 1987.
142. Orton, C.G. "TDF and Other Dose Comparison Factors." Presented at the First Biennial Brachytherapy and Remote Afterloading Symposium, St. Louis, September, 1987.
143. Orton, C.G. "High and Low Dose Rate Remote Afterloading: A Critical Comparison." Presented at "The Future of Brachytherapy" Conference, Phoenix, February 1988.
144. Orton, C.G. "Application of Bio-Effect Dose Models to Remote Afterloading in Cancer Radiotherapy." Presented at the International Conference on Biological Effects of Large Dose Radiation, Hangzhou, China, March 1988.
145. Orton, C.G. "Application of Bio-Effect Dose Models to Remote Afterloading" Presented at the Radiation Oncology Seminar Series, Guangzhou Tumor Hospital, Guangzhou, China, March 1988.
146. Orton, C.G. "Time Dose Models" Presented at the Medical Grand Rounds, 2nd Affiliated Hospital of Guangzhou, Guangzhou, China, March, 1988.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 45

147. Sapareto, S.A., Orton, C., and Corey, P.M. "A Proposal for a Thermometry Data Standard File Format for Hyperthermia Therapy. Presented at the 36th Annual Meeting of the Radiation Research Society, Philadelphia, April, 1988
148. Orton, C.G. "Remote Afterloading" Presented at the Radiation Oncology Seminar Series, Tufts-New England Medical Center, Boston, April, 1988.
149. Orton, C.G. "What Can Radiobiology do for you?" Presented to the Ontario Association of Medical Radiation Technologists, Windsor, May 1988.
150. Orton, C.G. "A Critical Comparison of High and Low Dose Rate Remote Afterloading." Presented at the World Congress on Medical Physics, San Antonio, Texas, August, 1988.
151. Orton, C.G. "Time, Dose Relationships in Radiotherapy Part I: Models and their Applications." Short Course presented at the World Congress on Medical Physics, San Antonio, Texas, August, 1988.
152. Orton, C.G. "...but Some are Useful." Presented at the 3rd International Conference on Dose, Time and Fractionation in Radiation Oncology, Madison, Wisconsin, Sept. 1988.
153. Orton, C.G., Herbert, D., Feldman, A., and Ovadia, J. "A Primer of Modern Data Analysis." Presented at the 3rd International Conference on Dose, Time and Fractionation in Radiation Oncology, Madison, Wisconsin, Sept. 1988.
154. Orton, C.G. "Biological Aspects of Combined Radiotherapy (Brachytherapy and Teletherapy)." Presented at the Brachytherapie im Wandel Conference, Wurzburg, Germany, October, 1988.
155. Orton, C.G. "Physical Considerations and Critical Review of Dose Equivalency Formulae." Presented at a Dose Rate and Fractionation Considerations in Clinical Brachytherapy Workshop, ASTRO Annual Conference, New Orleans, 1988.
156. Orton, C.G. "Radiation Oncology in the 1990's." Presented at the ASRT Annual Conference, New Orleans, Oct. 1988.
157. Orton, C.G. "Update on Radiation Oncology." Presented at the Henry Ford Hospital Radiation Oncology Seminar Series, Oct. 1988.
158. Orton, C.G. "Medical Health Physics." Presented at the School of Public Health, Univ. of Michigan, Nov. 1988.
159. Orton, C.G. "New Directions in Radiation Oncology." The Solomon Padam Singh Annual Oration, Annual Congress of the Assoc. of Radn. Oncologists of India, Calcutta, India, Dec. 1988.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 46

160. Orton, C.G. "The Future of Brachytherapy." Presented at the 5th Florida Medical Physics Mtg., Orlando, Feb. 1989. Orton, C.G. "Radiation Therapy in the Year 2000." Presented at the Detroit Medical Center Head and Neck Tumor Conference, March, 1989.
161. Orton, C.G. "Biology of High Dose-Rate Brachytherapy." Presented at the Radiation Oncology Seminar Series, Univ. of Miami, March, 1989.
162. Orton, C.G. "Impact of New Diagnostic Techniques on the Future of Radiotherapy." Presented to the Radiological and Medical Physics Society of New York, New York, March, 1989.
163. Orton, C.G. "The Physicists' Point of View." Presented at the Conference in Remote Afterloading: State of the Art, Detroit, May, 1989.
164. Orton, C.G. "Radiation Biology and Treatment Planning in Head and Neck Cancer Patients." Presented at the Symposium on Oral Sequelae of Multidisciplinary Cancer Therapy, Novi, Michigan, May, 1989.
165. Orton, C.G. "Biological Treatment Planning." Presented at the Conference on Remote Afterloading: State of the Art, Detroit, May, 1989.
166. Orton, C.G. "Impact of Radiobiology on the Future of Radiation Oncology." Presented to the Ontario Association of Medical Radiation Technologists, Kingston, Ontario, May, 1989.
167. Orton, C.G. "Radiobiology of Radioimmunotherapy." Presented at the 36th Annual Meeting, Society of Nuclear Medicine, St. Louis, June 1989.
168. Orton, C.G. "Medical Physics Training in the United States." Presented at the 6th ACMP Annual Meeting, San Diego, June 1989.
169. Orton, C.G. "High Dose Rate Remote Afterloading" Presented at the 1989 Midwest Region Society of Radiation Oncology Administrators Annual Meeting, Detroit, July 1989.
170. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Review Course, Memphis, July 1989.
171. Orton, C.G. "Radiobiology of High Dose Rate Brachytherapy" Presented at the ASTRO Annual Meeting, San Francisco, October, 1989.
172. Orton, C.G., Murray, K., Gillin, M.T., and Marable, V. "How to Workshop: Radiation Therapy Treatment Planning." Presented at the 75th Annual RSNA Meeting, Chicago, November 1989.
173. Orton, C.G. "Biological Considerations of Low and High Dose Rate Brachytherapy." Presented at the 12th Annual Mid-Winter Meeting of the American Endocurietherapy Society, Hilton Head, December, 1989.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 47

174. Orton, C.G. and Herskovic, A. "HDR Update." Presented at the Medical Physics Seminar Series, Harper Hospital, January, 1990
175. Orton, C.G. "Update on Neutron Therapy." Presented at the Detroit Medical Center Head and Neck Tumor Conference, February, 1990.
176. Orton, C.G. "Remote Afterloading: HDR vs. LDR." Presented at the RAMPS Spring Symposium, New York, April, 1990
177. Orton, C.G. "A Survey of HDR Regimes used in Cervix Cancer Radiotherapy." Presented at the International High Dose Rate Remote Afterloading Conference, Virginia Beach, May, 1990.
178. Orton, C.G. "Radiobiology of HDR Radiation: General Concepts." Presented at the "High Dose Rate Remote Afterloading in Gynecologic Oncology" Symposium, Madison, Wisconsin, June 1990.
179. Orton, C.G. "Fast Neutron Radiotherapy: Principles and Practice." Presented at the AAPM Summer School, Lawrence, Kansas, July 1990.
180. Orton, C.G. "Update on Time-Dose Models." Presented at the AAPM Summer School, Lawrence, Kansas, July 1990.
181. Orton, C.G. "Treatment Planning: Fundamentals." Presented at the AAPM Physics Review Course, St. Louis, July 1990.
182. Orton, C.G. "Treatment Planning: Clinical" Presented at the AAPM Physics Review Course, St. Louis, July 1990.
183. Kim, Y.H., Ahmad, K., Han, Il., Ezzell, G., Orton, C., and Powers, W. "Fractionated HDR Brachytherapy and Concurrent Teletherapy in the Treatment of Ca Cervix." Presented at the 6th Int. Selectron Users Mtg. Florence, Italy, Sept. 1990.
184. Orton, C.G. "Current Concepts in Radiobiology as Applied to Radiation Oncology." Presented to the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM), Victoria Branch, Melbourne, September, 1990.
185. Orton, C.G. "New Diagnostic Techniques in Cancer Radiotherapy." Presented and at the Royal Perth Hospital Medical Physics Seminar, Perth, September, 1990s.
186. Orton, C.G. "Medical Physics Training and Certification in the USA." Presented to the ACPSEM Western Australia Branch, Perth, September, 1990.
187. Orton, C.G. "The Role of New Diagnostic Techniques in Cancer Radiotherapy." Presented at the ACPSEM Annual Conference. Adelaide, September, 1990.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 48

188. Orton, C.G. "Recent Developments in Time-Dose Modelling." Presented at the ACPSEM Annual Conference, Adelaide, September, 1990.
189. Orton, C.G. "Radiobiology and Time-Dose Modelling for Radiotherapy." Presented at the Queensland Radium Institute Seminar, Brisbane, October, 1990.
190. Orton, C.G. "New Diagnostic Techniques in Cancer Radiotherapy." Presented to the Queensland Branch, ACPSEM, Brisbane, October, 1990.
191. Orton, C.G. "Radiobiological Aspects of Radiation Oncology." Presented to the ACPSEM N.S.W. Branch, Sydney, October, 1990.
192. Orton, C.G. "Medical Physics Training and Certification." Presented to the ACPSEM N.S.W. Branch, Sydney, October, 1990.
193. Orton, C.G. and Herbert, D. "Dose-Time-Response Modelling in Radiation Therapy (Refresher Course)." Presented at the ASTRO Annual Meeting, Miami Beach, October, 1990.
194. Orton, C.G., Murray, K. Gillin, M.T., and Marable, V. "How to Workshop: Radiation Therapy Treatment Planning." Presented at the 76th Annual RSNA Meeting, Chicago, November 1990.
195. Orton, C.G. "Understanding the Physics-Biology Interface." Presented at the HDR Brachytherapy Teaching Day, Univ. of Rochester Medical Center, November, 1990.
196. Orton, C.G. "Medical Physics." Presented at the School of Public Health, Univ. of Michigan, February, 1991.
197. Orton, C.G. "Biological Aspects of Radiation Therapy." Presented at the Multimodality Head and Neck Program Conference Series, Harper Hospital, April 1991.
198. Orton, C.G. "Treatment Planning in Radiation Therapy." Presented at the Multimodality Head and Neck Program conference Series, Harper Hospital, April 1991.
199. Orton, C.G. "Biological Effects of Low Levels of Radiation: BEIR V Review." Presented at the Medical Physics Seminar Series, Harper Hospital, May, 1991.
200. Orton, C.G. "Radiobiological Aspects of Brachytherapy Treatment Planning." Presented at the Brachytherapy: Past, Present and Future Symposium, Scottsdale, May, 1991.
201. Orton, C.G. "Treatment Planning." Presented at the Seoul Int. Workshop on Radiotherapy Treatment Planning and Remote Afterloading Brachytherapy, Seoul, Korea, July 1991.
202. Orton, C.G. "Biological Aspects of Treatment Planning." Presented at the Seoul Int. Workshop on Radiotherapy Treatment Planning and Remote Afterloading Brachytherapy, Seoul, Korea, July 1991.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 49

203. Orton, C.G. "Radiobiological Aspects of HDR Brachytherapy for Cervix Cancer." Presented at the Asan Medical Center, Seoul, Korea, July, 1991.
204. Orton, C.G. "Application of the Linear-Quadratic-Model to Cervix Cancer Radiotherapy: Theory and Results." Presented at the World Congress on Medical Physics and Biomedical Engineering, Kyoto, Japan, July, 1991.
205. Orton, C.G. and Lazarescu, G. "Dose, Time and Volume Considerations in Prostate Cancer Radiotherapy." Presented at the Prostate Cancer in the '90s Symposium, Valhalla, New York, Oct., 1991.
206. Orton, C.G. "Time Dose Fractionation in Radiotherapy." Presented at the London Regional Cancer Center Radiobiology Course, October 1991.
207. Orton, C.G. "Remote-Controlled Afterloading Brachytherapy." Presented at the London Regional Cancer Center Radiobiology Course, October 1991.
208. Orton, C.G. "Radiobiological Aspects of Treatment Planning" Presented at the Combined Modality Head and Neck Cancer Group Meeting, Wayne State University, November 1991.
209. Orton, C.G. "Physical Aspects of Treatment Planning" Presented at the Combined Modality Head and Neck Cancer Group Meeting, Wayne State University, November 1991.
210. Orton, C.G. and Herbert, D. "Dose/Time/Response Modeling in Radiation Oncology." Refresher Course presented at the ASTRO Annual Meeting. Washington, November 1991.
211. Orton, C.G. "Survey of HDR Remote Afterloading for Cervix Cancer." Presented at the USSR Medical Physics Association Annual Conference, Obninsk, USSR, November, 1991.
212. Orton, C.G. "Hyperfractionation" Presented to the Michigan Society of Therapeutic Radiology, Detroit, December, 1991.
213. Orton, C.G. "Stereotactic Radiosurgery: Volume Effects. Presented at the Radiation Oncology Seminar Series, Harper Hospital, January, 1992.
214. Orton, C.G. "Update on the Biological Effects of Low Levels of Ionizing Radiation." Presented at the AAPM Great Lakes Chapter Mtg., Petosky, MI, February 1992.
215. Orton, C.G. "Results of a Survey of High Dose Rate Cervix Cancer Treatments." Presented at the 40th Annual Mtg. of the Radiation Research Soc., Salt Lake City, March 1992.
216. Orton, C.G. "Radiation Biology: TDF" Presented at the AAPM S.E. Chapter Symposium on High Dose Rate Brachytherapy, Savannah, March 1992.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 50

217. Orton, C.G. "World Review of HDR Brachytherapy for Cancer of the Cervix" Presented at the NY Medical College Cancer of the Uterus and Ovary Symposium, New York, April 1992.
218. Orton, C.G. "Radiobiology: HDR vs LDR." Presented at the 1st Nordic Brachytherapy Working Conference, Linköping, Sweden, May, 1992
219. Ahmad, K., Orton, C.G., Kim, Y.H. and Porter, A.F. "Multifractionated HDR Brachytherapy for Cervical Carcinoma Using the Ahmad-Kim Positioner." Presented at the 1st Nordic Brachytherapy Working Conference, Linköping, Sweden, May, 1992.
220. Orton, C.G., Ahmad, K., Alekhteyar, K.M., and Porter, A.T. "Brachytherapy for Cancer of the Cervix: Detroit Experience." Presented at the 1st Nordic Brachytherapy Working Conference, Linköping, Sweden, May, 1992.
221. Orton, C.G. "Comparison of High and Low Dose Rate Remote Afterloading and the Importance of Fractionation." Presented at the 7th International Brachytherapy Conference, Luzern, Switzerland, May, 1992.
222. Orton, C.G. "Dose Distributions and Scatter Analysis: Presented at the Workshop in Medical Physics, Islamabad, Pakistan, April, 1992.
223. Orton, C.G. "Dosimetric Calculations." Presented at the Workshop in Medical Physics, Islamabad, Pakistan, April, 1992.
224. Orton, C.G. "Treatment Planning: Isodose Distributions." Presented at the Workshop in Medical Physics, Islamabad, Pakistan, April, 1992.
225. Orton, C.G. "Radiobiology." Presented at the workshop in Medical Physics, Islamabad, Pakistan, April, 1992.
226. Orton, C.G. "Recent Advances in Radiation Oncology." Presented at the workshop in Medical Physics, Islamabad, Pakistan, April, 1992.
227. Orton, C.G. "Biological Basis for Low and High Dose Rate Brachytherapy." Presented at the International Advances in Brachytherapy Conference, New York, June 1992.
228. Orton, C.G. "Application of Bioeffect Dose Models to the Design of New Treatment Regimes." AAPM Annual Mtg. (Poster), Calgary, August 1992.
229. Orton, C.G. "Treatment Planning: Fundamentals." Presented at the AAPM Physics Review Course, Calgary, August 1992.
230. Orton, C.G. "Treatment Planning: Clinical X-Rays." Presented at the AAPM Physics, Review Course, Calgary, August 1992.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 51

231. Orton, C.G. and Somnay, A. "Results of an International Review on Patters of Care in
232. Cancer of the Cervix." Presented at the 7th International Conference on Brachytherapy, Baltimore, September 1992.
233. Orton, C.G. "Mathematical Models in Radiobiology." Presented at the 7th International Conference on Brachytherapy, Baltimore, September 1992.
234. Orton, C.G. "Cancer Incidence in the USA with Special Reference to Tumour Sites Treated with Brachytherapy." Poster present at the 7th International Conference on Brachytherapy, Baltimore, September 1992.
235. Orton, C.G. "Issues in HDR." Presented at the "Prediction of Response in Radiation
236. Therapy" International Conference, Madison, Wisconsin, September 1992.
237. Orton, C.G. "The L-Q Model." Seminar presented at the Centro de Deteccion y Tratamiento, Buenos Aires, September 1992.
238. Orton, C.G. "Uso Clinico: Remote Afterloading Brachytherapy for Gynecological Cancer." Presented at the Workshop de Fisica Medica, Oro Verde, Argentina, September 1992.
239. Orton, C.G. "Radiobiological Principles of Radiation Oncology." Presented at the 1st Congress Argentino Conjunto de Proengeniera y Fisica Medica, Oro Verde, Argentina, September 1992.
240. Orton, C.G. "Update on Ca Cervix Remote Afterloading Survey: HDR vs LDR." Presented at the Ohio Society of Radiologic Technologists Annual Meeting. Akron, Ohio, October, 1992.
241. Orton, C.G. "Update on Time-Dose Models." Presented at the Medical College of Georgia. Radiation Therapy Seminar, Augusta, Georgia, October 1992.
242. Orton, C.G. "HDR Remote Afterloading: Rationale and Clinical Experience." Presented at the Medical College of Georgia, Radiation Therapy Seminar, Augusta, Georgia, October 1992.
243. Orton, C.G. "International Organizations of Medical Physics." Presented at the Current Issues in Medical and Health Physics Conference, Chicago, October, 1992.
244. Orton, C.G. and Herbert, D. "Dose/Time/Response Modelling in Radiation Oncology." Refresher Course Presented at the ASTRO Annual Meeting., San Diego, November, 1992.
245. Alekhteyar, K.M., Porter, A.T., Ryan, J., Orton, C., and Forman, J.D. "Preliminary Results of Hyperfractionated High Dose Rate Brachytherapy in Soft Tissue Sarcoma." Presented at the American Endocurietherapy Society Annual Meeting, Beaver Creek, Colorado, December, 1992.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 52

246. Orton, C.G., Murry, K., Gillin, M.T., and Marable, V. "How to Workshop: Radiation Therapy Treatment Planning." Presented at the 78th Annual RSNA Meeting, Chicago, December, 1992.
247. Orton, C.G. and Ezzell, G. "Radiobiology and Physics of High-Dose-Rate Brachytherapy." Presented at the 78th Annual RSNA Meeting, Chicago, December, 1992.
248. Orton, C.G. "New and Exciting Developments in Radiation Oncology." Presented at the H.F. Verwoerd Hospital, Pretoria, South Africa, March 1993.
249. Orton, C.G. "Recent Advances in Bioeffect Dose Modelling." Presented at the Medical University of South Africa, Medunsa, South Africa, March 1993.
250. Orton, C.G. "New Advances in Radiation Oncology." Oetlé Memorial Lecture, The South Africa Inst. for Med. Res., Johannesburg, March 1993.
251. Orton, C.G. "Radiobiological Aspects of Radiation Oncology and the Development of New Treatment Regimes." Presented at the Johannesburg Hospital, South Africa, March 1993.
252. Orton, C.G. "Survey of High and Low Dose Rate Brachytherapy for Cervix Cancer." Presented at the 33rd Annual Congress of the S.A. Assoc. of Physicists in Medicine, Bloemfontein, South Africa, March 1993.
253. Orton, C.G. "Radiobiological Aspects of High Dose Rate Brachytherapy." Presented at the 33rd Annual Congress of the S.A. Assoc. of Physicists in Medicine, Bloemfontein, South Africa, March 1993.
254. Maughan, R.L., Yudelev, M., Warmelink, C.O., Orton, C.G., Porter, A.T. and Forman, J.D. "Experience with Neutron Therapy at the Harper Hospital Superconducting Cyclotron Facility." Presented at the 33rd Annual Congress of the S.A. Assoc. of Physicists in Medicine, Bloemfontein, South Africa, March 1993.
255. Orton, C.G. "International Organizations in Medical Physics." Presented at the 33rd Annual Congress of the S.A. Assoc. of Physicists in Medicine, Bloemfontein, South Africa, March 1993.
256. Orton, C.G. "Radiobiological Aspects of HDR Brachytherapy." Presented at the Addington Hospital, Durban, South Africa, March 1993.
257. Orton, C.G. "The International Organization for Medical Physics." Presented at the Addington Hospital, Durban, South Africa, March 1993.
258. Orton, C.G. "New Developments in Radiation Oncology and the Design of New Treatment Regimes." Presented at the Addington Hospital, Durban, South Africa, March 1993.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 53

259. Orton, C.G. "New Advances in Radiation Oncology." Presented at the Groote Schuur Hospital, Cape Town, South Africa, March 1993.
260. Orton, C.G. "HDR and LDR Brachytherapy for Cervix Cancer." Presented at the Tygerberg Hospital, Cape Town, South Africa, March 1993.
261. Orton, C.G. "New and Exciting Developments in Radiation Oncology." Presented at the Tygerberg Hospital, Cape Town, South Africa, March 1993.
262. Orton, C.G. "Radiobiological Aspects of HDR Brachytherapy." Presented at the National Hospital, Bloemfontein, South Africa, March 1993.
263. Orton, C.G. "Radiation Oncology: Radiobiology and the Development of New Treatment Regimes." Presented at the National Hospital, Bloemfontein, South Africa, March 1993.
264. Orton, C.G. "Survey of HDR and LDR Brachytherapy for Cervix Cancer." Presented at the University Hospital, Bloemfontein, South Africa, March 1993.
265. Orton, C.G. "New and Exciting Developments in Radiation Oncology." Presented at the University Hospital, Bloemfontein, South Africa, March 1993.
266. Orton, C.G. "The History of Medical Physics as a Profession and Ten Years of ACMP Accomplishments." Presented at the 10th ACMP Annual Meeting, Destin, Florida, April 1993.
267. Orton, C.G. "Experience with Neutron Therapy at the Harper Hospital Superconducting Cyclotron Facility. Presented at the 18th Annual Meeting of the AAMD , Atlanta, June 1993.
268. Orton, C.G. "Survey of High and Low Dose Rate Brachytherapy for Cervix Cancer." Presented at the 18th Annual Meeting of the AAMD , Atlanta, June 1993.
269. Orton, C.G. "Radiobiological Aspects of Radiation Oncology: Modified Fractionation and Neutron Therapy." Presented at the ASRT Radiation Therapy/Dosimetry Conference, Detroit, August 1993.
270. Orton, C.G. "Comparison Between High Dose Rate and Low Dose Rate Brachytherapy." Presented at the ASRT Radiation Therapy/Dosimetry Conference, Detroit, August 1993
271. Orton, C.G. "Treatment Planning: Fundamentals." Presented at the AAPM Physics Review Course, Washington, D.C., August 1993.
272. Orton, C.G. "Treatment Planning: Clinical X-Rays." Presented at the AAPM Physics Review Course, Washington, D.C., August 1993.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 54

273. Orton, C.G. "Radiobiology of HDR Brachytherapy." Presented at the 7th Annual Brachytherapy Symposium. Ohio State University, Columbus, OH, Sept. 1993.
274. Orton, C.G. "Medical Physics." Presented at the Michigan State University Physics Colloquium, Sept. 1993.
275. Orton, C.G. "Radiobiology of IORT." Presented at the 7th Annual Brachytherapy Symposium. Ohio State University, Columbus, OH, Sept. 1993.
276. Orton, C.G. "Bioeffect Dosimetry in Radiation Therapy: Rationale, Recent Developments and Applications." Presented at the 4th National Medical Physics Congress, Turkish Medical Physics Association, Istanbul, Oct. 1993.
277. Orton, C.G. "The House Believes that High Dose Rate Intracavitary Brachytherapy offers no Advantage over Conventional Methods for Treatment of Carcinoma of the Cervix." 1st ASTRO Debate, New Orleans, October, 1993.
278. Orton, C.G. "Unravelling the Mysteries of Dose-Volume Histograms." Presented at the Radiation Oncology Seminar Series, Harper Hospital, October 1993.
279. Orton, C.G. "High vs Low Dose Rate Radiotherapy." Presented at the Annual Scientific Meeting. Assoc. of Radiation Oncologists of Quebec, Quebec City, Nov. 1993.
280. Orton, C.G. "Radiobiological Considerations of Non-conventional Therapies: Radiosurgery, IORT, HDR, TID." Presented at the Medical Physics Seminar Series, University of Wisconsin, Madison, November 1993.
281. Orton, C.G. and Warmelink, C. "Single Fraction Treatment in Stereotactic Radiosurgery": Presented at the 11th Asia Pacific Cancer Conference, Bangkok, Thailand, November 1993.
282. Orton, C.G. "High Dose Rate Brachytherapy for Gynecological Cancers." Presented at the 11th Asia Pacific Cancer Conference, Bangkok, Thailand, November, 1993
283. Orton, C.G. "Practical Considerations of Biological Effects in LDR and HDR." Presented to the Medical Physics Club of Thailand, Bangkok, November 1993.
284. Orton, C.G. "Mathematical Models in Biology." Presented to the Medical Physics Club of Thailand, Bangkok, November 1993.
285. Orton, C.G. and Ezzell, G. "Radiobiology and Physics of High Dose-Rate Brachytherapy." Refresher Course presented at the RSNA Annual Meeting, Chicago, December 1993.
286. Orton, C.G., Mesina, C., Forman, J.D., and Marable, V. "3-D Treatment Planning." Refresher Course presented at the RSNA Annual Meeting, Chicago, December 1993.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 55

287. Orton, C.G. "High Dose Rate Brachytherapy for Cervix Cancer." Presented at the 16th Annual Meeting of the American Endocurietherapy Society, Phoenix, December 1993.
288. Orton, C.G. "Radiobiology of HDR: The Case for a Larger Number of Fractions." Presented at the 4th Annual Mid-Winter Symposium, GYN High Dose Rate Brachytherapy, Miami, January, 1994.
289. Orton, C.G. "Bioeffect Modelling in Radiation Therapy." Presented at the William Beaumont Hospital Seminar Series, February, 1994.
290. Orton, C.G. "Cervix Cancer Brachytherapy: HDR vs. LDR." Presented at the Beth Israel Hospital Radiation Oncology Seminar, New York, March 1994.
291. Orton, C.G. "Comparison of High Dose Rate and Low Dose Rate Brachytherapy." Presented at the Henry Ford Hospital Radiation Oncology Grand Rounds, Detroit, March, 1994.
292. Orton, C.G. "Radiobiological Aspects of Radiation Safety." Presented at the Radiation Oncology Seminar Series, Harper Hospital, Detroit, May, 1994.
293. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Physics Review Course, Anaheim, CA, July 1994.
294. Orton, C.G. "Treatment Planning: Clinical X Rays." Presented at the AAPM Physics Review Course, Anaheim, CA, July 1994.
295. Orton, C.G. "Fowler's First Fundamentals of Fractionation." Presented at the 36th AAPM Annual Meeting, Anaheim, CA, July 1994.
296. Ezzell, G., Orton, C., Ragan D., Forman, J., Kang, K. "Geometric and Stochastic Optimization of 3D Treatment Planning": Presented at the 36th Annual AAPM Meeting, Anaheim, CA, July 1994.
297. Orton, C.G. "L-Q Model Predictions on the Importance of Fractionation in HDR Brachytherapy." Presented at the World Congress on Medical Physics and Biomedical Engineering, Rio de Janeiro, August 1994.
298. Mesina, C.F., McDermott, P.N., Orton, C.G., Ezzell, G. "Modification of a Co-60 Unit for Dedicated Total Body Irradiation." Presented at the World Congress on Medical Physics and Biomedical Engineering, Rio de Janeiro, August 1994.
299. Narayana, V., Orton, C.G. "Pulsed Brachytherapy: A Formalism to Account for the Variation in Dose Rate of the Stepping Source." Presented at the World Congress on Medical Physics and Biomedical Engineering, Rio de Janeiro, August 1994.
300. Chungbin, S., Orton, C., Gillin, M., Klein, E.E. "Heterogeneity Correction Evaluation for RTOG Protocol 88-08. Presented at the 36th Annual AAPM Meeting, Anaheim, CA, July 1994.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 56

301. Klein, E.E., Gibbons, J., Li, Z., Chungbin, S., Orton, C. "Benchmark Measurements for Lung Correction for Energies Ranging from Co-60 to 24 MV. Presented at the 36th Annual AAPM Meeting, Anaheim, CA, July 1994.
302. Alecu, R., Alecu, M., Wierzbicki, J., Orton, C., Feldmeir, J., Collier, J.M. "Dosimetric Evaluation of the Tissue-Tooth Interface in Electron Beam Therapy." Presented at the 36th Annual AAPM Meeting, Anaheim, CA, July 1994.
303. Orton, C.G. and Windham, J.P. "The Professional of Medical Physics." Presented at Radiation Oncology Seminar Series, Harper Hospital, Detroit, October 1994.
304. Orton, C.G. "Basic Principles of Radiotherapy. Presented at the Radiotherapy and Radiation Physics Seminar, Ciptomangunkusumo Hospital, Jakarta, Indonesia, Oct. 1994.
305. Orton, C.G. "Treatment Planning: Physical Principles." Presented at the Radiotherapy and Radiation Physics Seminar, Ciptomangunkusumo Hospital, Jakarta, Indonesia, Oct. 1994.
306. Orton, C.G. and Horton, J. "Teletherapy and Brachytherapy Calibrations." Presented at the Radiotherapy and Radiation Physics Seminar, Ciptomangunkusumo Hospital, Jakarta, Indonesia, Oct. 1994.
307. Orton, C.G. "Future Directions in Radiation Oncology." Presented at the Magnetic Resonance Seminar Series, Harper Hospital, November, 1994.
308. Orton, C.G. "A Commemorative Stroll Through the First Fifty Years of X-ray Therapy." Presented at the AAPM Great Lakes Chapter Meeting, January, 1995.
309. Orton, C.G. "A History of X-ray Therapy." Presented at the Radiation Oncology Center Seminar Series, Harper Hospital, February, 1995.
310. Orton, C.G. "The First Fifty Years of X-ray Therapy." Presented at the Radiation Therapists' Continuing Education Seminar, Harper Hospital, Detroit, March 1995.
311. Orton, C.G. "Dose Escalation with HDR Brachytherapy." Presented at the San Francisco Cancer Symposium, March 1995.
312. Orton, C.G. "Fetal Doses in Radiotherapy: Review of AAPM TG36 Report." Presented at the Radiation Oncology Seminar Series, Harper Hospital, May 1995.
313. Orton, C.G. "100 Years in Radiology." Hartman Centennial Oration, American College of Medical Physics Annual Meeting. Scottsdale, June, 1995.
314. Alecu, R., Alecu, M., Feldmeier, J., Court, W., Orton, C.G. "Influence of Diodes on Dose Distributions." Presented at the 37th Annual AAPM Meeting, Boston, July, 1995.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 57

315. Orton, C.G. "Historical Review: The First Fifty Years of X-Ray Therapy" Presented at the 37th Annual AAPM Meeting, Boston, July, 1995.
316. Orton, C.G. "Treatment Planning: Fundamentals." Review Course presented at the 37th Annual AAPM Meeting, Boston, July, 1995.
317. Orton, C.G. "Treatment Planning: Clinical X-Rays." Review Course presented at the 37th Annual AAPM Meeting, Boston, July, 1995.
318. Orton, C.G. and Han, I. "HDR Brachytherapy for Cervix Cancer." Radiation Oncology seminar presented at the Hurley Medical Center. Flint, August 1995.
319. Orton, C.G. "Update on Radiation Oncology Research." Presented at the Division of Hematology and Oncology Research Conference, Karmanos Cancer Institute, Detroit, September 1995.
320. Orton C.G. "Radiation Therapy: The First Fifty Years." Presented at the 40th Annual Meeting of the Michigan Society of Radiologic Technologists, Lansing, MI., September 1995.
321. Alecu, R., Feldmeir, J., He, T., Alecu, M., Court, W., and Orton, C.G. "Design of Compensators with Hip Prostheses Undergoing Pelvic Irradiation." Presented at the 3rd Biennial ESTRO Meeting on Physics in Clinical Radiotherapy, Gardone, Italy, October 1995.
322. Alecu, R., Alecu, M., Feldmeier, J., Kaschalk, L. and Orton, C.G. "In Vivo Dosimetry for Patients with Lung Cancer." Presented at the 3rd Biennial ESTRO Meeting on Physics in Clinical Radiotherapy, Gardone, Italy, Oct. 1995.
323. Orton, C.G. "The First Fifty Years of X-ray Radiotherapy." Presented at the Special Historical Lecture Series, M.D. Anderson Cancer Center, Houston, November, 1995.
324. Orton, C.G. and Ezzell, G. "Radiobiology and Physics of High Dose Rate Brachytherapy." Refresher Course presented at the RSNA Annual Meeting, Chicago, November 1995.
325. Alecu, R., Court, W.S., Feldmeier, J.J., Alecu, M., and Orton, C.G. "Patients with Cardiac Pacemakers who Undergo Radiation Therapy: Problems and Solutions." Presented at the RSNA Annual Meeting, Chicago, Nov. 1995.
326. Orton, C.G. "The Dose-Rate Effect in Brachytherapy: Friend or Foe?" Henschke Lecture presented at the American Brachytherapy Society Annual Meeting, Scottsdale, Dec. 1995.
327. Orton, C.G. "Uses and Abuses of Radioactivity in the Early 1900's." Presented at the AAPM Great Lakes Chapter Meeting, Shanty Creek, MI, Jan. 1996.
328. Orton, C.G. "Uses and Abuses of Radioactivity in the Early 1900's." Presented at the Medical Physics Seminar Series, Karmanos Cancer Institute, Detroit, MI, Feb. 1996.

329. Orton, C.G. "The Dose-Rate Effect in Brachytherapy." Presented at the Medical Physics Seminar Series, Karmanos Cancer Institute, Detroit, MI, Feb. 1996.
330. Orton, C.G. "Radiobiology." One-week course presented at the IAEA National Training Program in Medical Physics, Mexico City, March 26-30, 1996.
331. Orton, C.G. "Influence of Time Schedule on Brachytherapy Results." Presented at the GEC-ESTRO and ABS Workshop on Dose and Volume Specification in Interstitial Therapy, Tours, France, May 1996.
332. Orton, C.G. and Anderson, L. "Reporting the Time Schedule." Presented at the GEC-ESTRO and ABS Workshop on Dose and Volume Specification in Interstitial Therapy, Tours, France, May 1996.
333. Alecu, R., Feldmeier, J.J., Court, W.S., Alecu, M and Orton, C.G. "Clinical Implementation of a Quality Assurance Program in HDR Brachytherapy by in vivo Dosimetry with Diodes. Presented at the GEC/ESTRO - GLAC International Brachytherapy Meeting, Tours, France, May 1996.
334. Chuba, P., Ben-Josef, E.B., Orton, C.G. "Daily versus Twice Daily Fractionation for High Dose-Rate Brachytherapy in Soft-Tissue Sarcoma. Presented at the GEC/ESTRO - GLAC International Brachytherapy Meeting, Tours, France, May 1996.
335. Orton, C.G. "Treatment Planning Fundamentals." Review Course presented at the 38th Annual AAPM Meeting, Philadelphia, July, 1996.
336. Orton, C.G. "Treatment Planning: Clinical X-Rays: Review Course presented at the 38th Annual AAPM Meeting, Philadelphia, July, 1996.
337. Orton, C.G. "Examination Content and Preparation Guidelines." Presented at the Symposium on ABMP Certification, 38th Annual AAPM Meeting, Philadelphia, July, 1996.
338. Orton, C.G. "Radiobiology of HDR in Cervical Cancer." Presented at the Innovative Uses of the Micro-Selectron-HDR Remote Afterloading System Workshop, Los Angeles, Sept. 1996.
339. Orton, C.G. "Why does HDR Brachytherapy Work so Well for Cervix Carcinoma Patients?" Presented at the 15th ESTRO Annual Meeting, Vienna, September, 1996.
340. Orton, C.G. "Radiobiological Aspects of Low-, Medium - and High-Dose-Rate Brachytherapy. Presented at the Brachytherapy into the 21st Century Workshop, Long Beach, October 1996.
341. Orton, C.G. "High Dose Rate Brachytherapy." Seminar presented at the University of Pittsburgh Medical Center, November 1996.
342. Orton, C.G. "New and Exciting Developments in Radiobiological Aspects of Radiation Therapy." Presented at the MSRT Educational Conference, Flint, Michigan, March 1997.
343. Orton, C.G. "Protocol Design for HDR Brachytherapy." Presented at the Brachytherapy in the Next Millennium conference, New York, April 1997.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 59

344. Orton, C.G. "Are we ready for HDR in the Developing Countries?" Keynote Address at the Brachytherapy in the Next Millennium conference, New York, April 1997.
345. Orton, C.G. "Future Developments and Opportunities for HDR Brachytherapy." Presented at the Internal Workshop on New and Future Developments in HDR Brachytherapy, Detroit, June 1997.
346. Orton, C.G. "Radiobiological Aspects of HDR Brachytherapy." Presented at the Internal Workshop on New and Future Developments in HDR Brachytherapy, Detroit, June 1997.
347. Orton, C.G. "Treatment Planning: Fundamentals." Review Course presented at the 39th annual AAPM Meeting, Milwaukee, July 1997.
348. Orton, C.G. "Treatment Planning: Clinical X Rays." Review Course presented at the 39th annual AAPM Meeting, Milwaukee, July 1997.
349. Orton, C.G. "Medical Physics: Preparing for the Electronic Revolution." Presented at the 39th Annual AAPM Meeting, Milwaukee, July 1997.
350. Narayana, V. And Orton, C.G. "Evaluation of Treatment that Combine External Beam and Brachytherapy Using the Linear Quadratic Model in 3D: presented at the 39th annual AAPM Meeting, Milwaukee, July 1997.
351. Orton, C.G. "Radiobiological Aspects of HDR Brachytherapy in Cervical Carcinoma. Seminar presented at the James Cancer Hospital, Columbus, Ohio, August 1997.
352. Orton, C.G. "Is There a Dose-Rate Effect in Brachytherapy: Pierquin revisited." Presented at the World Congress on Medical Physics and Biomedical Engineering, Nice, France, September 1997.
353. Narayana, V and Orton, C.G. "A Generalized ERD Equation Based on the LQ Model." Presented at the 5th International Conference on Dose, Time, and Fractionation in Radiation Oncology, Madison, October 1997.
354. Orton, C.G. "Radiological Aspects of Low, Medium and High Dose Rate Brachytherapy." Presented at the 14th Annual International Brachytherapy Workshop, Long Beach, CA, October 1997.
355. Orton, C.G. "Radiobiology in Brachytherapy: Biologic Aspects and Practical Application." Presented in a Refresher Course at the 83rd RSNA Annual Meeting, Chicago, December 1997.
356. Orton, C.G. "Clinical Radiobiology." Presented at the American Brachytherapy Society School of Brachytherapy, Phoenix, Dec. 1997.
357. Orton, C.G. "Radiobiology Workshop." Presented at the American Brachytherapy Society School of Brachytherapy, Phoenix, Dec. 1997.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 60

358. Orton, C.G. "Radiation Therapy for Cervix Cancer is Primitive and Needs to be Updated." Presented as the Failla Memorial Lecture, Radiological and Medical Physics Society, New York, January, 1998.
359. Orton, C.G. "Radiation Therapy for Cervix Cancer is Primitive and Needs to be Updated." Presented at the Radiation Oncology Seminar Series, Harper Hospital, Detroit, February, 1998.
360. Orton, C.G. "The Role of In Vivo Dosimetry in a Radiation Therapy Department." Presented at the New and Future Developments in In Vivo Dosimetry Conference, Dallas, May, 1998.
361. Orton, C.G. "New Developments in the Radiobiology of High Dose Rate Brachytherapy." Presented at the New and Future Developments in High Dose Rate Brachytherapy Conference, Dallas, May, 1998.
362. Orton, C.G. "The Future of High Dose Rate Brachytherapy." Presented at the New and Future Developments in High Dose Rate Brachytherapy Conference, Dallas, May, 1998.
363. Orton, C.G. "Radiobiological Aspects of Dose Rate, Fractionation, and Repair for LDR, MDR, HDR, and PDR." Presented at the ICRU 38: The Basis for Revision Workshop, GEC-ESTRO Annual Workshop, Napoli, May, 1998.
364. Nag, S., Orton, C.G., Young, D., Erickson, B. "The American Brachytherapy Society Survey of Brachytherapy Practice for Carcinoma of the Cervix in the United States." Poster presented at the ICRU 38: The Basis for Revision Workshop, GEC-ESTRO Annual Workshop, Napoli, May, 1998.
365. Orton, C.G. "Which Isotope Should I Use? The Time-Dose Implications of I-125 vs. Pd-103 vs. Ir-192 (HDR)  $\pm$  External Beam." Presented at the ACMP Prostate Workshop, Williamsburg, May 1998.



366. Orton, C.G. "Prostate Brachytherapy: I-125, Pd-103, or HDR." Presented at the Radiation Oncology Seminar Series, Harper Hospital, Detroit, June, 1998.
367. Orton, C.G. "Specification of Dose in GYN Brachytherapy: Presented at the Radiation Oncology Seminar Series, Harper Hospital, Detroit, June, 1998.
368. Orton, C.G. "Role of Diodes in Radiotherapy": Presented at the Radiation Oncology Seminar Series, Harper Hospital, Detroit, June, 1998.
369. Orton, C.G. "Basic Radiobiology and Bio-effect Dose Models." Presented at the Radiation Oncology Seminar Series, Harper Hospital, Detroit, June, 1998.
370. Orton, C.G. "Treatment Planning: Fundamentals". Review Course presented at the AAPM Annual Meeting, San Antonio, August 1998.
371. Orton, C.G. "Treatment Planning: Clinical x-rays." Review Course presented at the AAPM Annual Meeting, San Antonio, August 1998.
372. Orton, C.G. "Radiobiological Aspects of Low, Medium, and High Dose Rate Brachytherapy." Presented at the 15<sup>th</sup> Annual Brachytherapy Meeting, Long Beach, October, 1998.
373. Orton, C.G. "Emerging New Technologies in Radiation Oncology." Presented at the Int. Conference on Medical Physics, New Delhi, November, 1998.
374. Orton, C.G. and Sprawls, P. "The History of Medical Physics." Presented at the Int. Conference on Medical Physics, New Delhi, November, 1998.
375. Orton, C.G. "Radiobiological Basis of Intravascular Restenosis Brachytherapy." Presented at the Int. Conference on Medical Physics, New Delhi, November, 1998.
376. Orton, C.G. "Clinical Implications of Dose Rate." Presented at the Int. Conference on Medical Physics, New Delhi, November, 1998.
377. Orton, C.G. "New Developments in Radiation Oncology." Presented at the Bhagwan Mahaveer Cancer Hospital and Research Center, Jaipur, India, November, 1998.
378. Orton, C.G. "Radiobiology of Brachytherapy." Refresher Course presented at the 84<sup>th</sup> RSNA Annual Meeting, Chicago, December, 1998.
379. Orton, C.G. "Innovations in Technology of Brachytherapy." Presented at the World Board Congress of Brachytherapy, Guayaquil, Ecuador, December 1998.
380. Orton, C.G. "Update on Brachytherapy: Presented at the Gershenson Radiation Oncology Center Seminar series, February, 1999.
381. Orton, C.G. "New Developments in Brachytherapy: Presented at the 2<sup>nd</sup> Annual MSTR/AAPM Winter Meeting, Shanty Creek, MI, February 1999.
382. Orton, C.G. "Radiobiological Implications in Prostate Brachytherapy." Presented at the HDR Prostate Brachytherapy Workshop, Orlando, February 1999.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 62

383. Orton, C.G. "Emerging New Technologies in Radiation Oncology." Presented at the Mid-American Education Conference, Flint, MI, April 1999.
384. Orton, C.G. "The Radiobiology of HDR Ir-192/LDR I-125/Pd-103 for Prostate Implantation." Presented at the Annual Meeting, American Brachytherapy Society, San Diego, May 1999.
385. Orton, C.G. "Status of Bioeffect Planning." Presented at Radiology 1999, Birmingham, U.K. May 1999.
386. Orton, C.G. "Radiotherapy for Cervix Cancer is Primitive and Needs to be Updated." Nagalingam Suntharalingam Annual Orator, Philadelphia, May 1999.
387. Orton, C.G. "Basic Overview of Radiobiology as Applied to Radiotherapy." Presented at the AAPM/IOMP Summer School "The Physics of Radiation Therapy," Cluj, Romania, June, 1999
388. Orton, C.G. "Radiobiology of New Developments in Dose Modification." Presented at the AAPM/IOMP Summer School "The Physics of Radiation Therapy," Cluj, Romania, June, 1999
389. Orton, C.G. "Radiation Safety: Regulations and Recommendations and Sources of Exposure: Presented at the AAPM/IOMP Summer School "The Physics of Radiation Therapy," Cluj, Romania, June, 1999
390. Orton, C.G. "Treatment Planning: Fundamentals." Presented at the AAPM Annual Meeting, Nashville, July 1999.
391. Orton, C.G. "Treatment Planning: Clinical x-rays." Presented at the AAPM Annual Meeting, Nashville, July 1999.
392. Orton, C.G. "New Developments in Radiobiology of HDR Brachytherapy." Presented at the 3<sup>rd</sup> Annual International Conference on New and Future Developments in High Dose Rate Brachytherapy, Detroit, September 1999.
393. Orton, C.G. "News of Regulations and Safety Issues for HDRB." Presented at the 3<sup>rd</sup> Annual International Conference on New and Future Developments in High Dose Rate Brachytherapy, Detroit, September 1999.
394. Orton, C.G. "The Future of HDRB." Presented at the 3<sup>rd</sup> Annual International Conference on New and Future Developments in High Dose Rate Brachytherapy, Detroit, September 1999.
395. Orton, C.G. "The Relationship Between Cell Survival and Clinical Response: the Legacy of Lionel Cohen." Presented at the 6<sup>th</sup> Annual Kodak Memorial Lecture, Rochester, N.Y., October 1999.
396. Orton, C.G. "Radiobiological Aspects of LDR and HDR Brachytherapy." Presented at the Brachytherapy for Carcinoma of the Prostate Workshop, Long Beach, CA., October 1999.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 63

397. Orton, C.G. "Dose Rate Factor and Fractionation in Brachytherapy." Presented at the International Symposium on Future Developments in Radiation Oncology '99, Yokohama, Japan, November 1999.
398. Orton, C.G. "Electronic Publishing. Opportunities and Challenges." Presented at the Radiation Oncology Department Seminar Series, Harper Hospital, February 2000.
399. Orton, C.G. "Publications in the 21<sup>st</sup> Century." Presented at the Medical Physics Department Seminar Series, University of Wisconsin, Madison, March 2000.
400. Orton, C.G. "Radiobiological Considerations for Intravascular Brachytherapy. Presented at the 49<sup>th</sup> Annual Meeting of the Radiological Society of the ROC, Taichung, Taiwan, March 2000.
401. Orton, C.G. "New Data Shows that HDR Brachytherapy May be Radiobiologically Superior to LDR." Presented at the 49<sup>th</sup> Annual Meeting of the Radiological Society of the ROC, Taichung, Taiwan, March 2000.
402. Orton, C.G. "NTCP and TCP Calculations for IMRT." Presented at the 49<sup>th</sup> Annual Meeting of the Radiological Society of the ROC, Taichung, Taiwan, March 2000.
403. Orton, C.G. "New Technologies for a New Millennium." Presented at the 4<sup>th</sup> Annual Meeting of the Scientific Association of Swiss Radiation Oncology, St. Gallen, Switzerland, April 2000.
404. Orton, C.G. "Exciting New Developments in the Radiation Treatment of Cancer and Other Diseases." Presented at the International Conference on Ionizing Radiation in Medical Applications, Hanoi, Vietnam, April 2000.
405. Orton, C.G. "Publications in the 21<sup>st</sup> Century." Presented at the AAPM Great Lakes Chapter Spring Symposium, Ann Arbor, MI, May 2000.
406. Orton, C.G. "Basic Radiobiology for Clinicians." Presented at the Minisymposium on Radiation Oncology, Dept. of Neurosurgery, Wayne State University, Detroit, May 2000
407. Nag, S., Orton, C. et al. "The American Brachytherapy Society Recommendations for High Dose Rate Brachytherapy for Carcinoma of the Cervix." Presented at the 2<sup>nd</sup> Joint Meeting ABS/GEC-ESTRO/GLAC, Crystal City, VA, May 2000.
408. Orton, C.G. "Treatment Planning: Fundamentals." Presented at the World Congress on Medical Physics and Biomedical Engineering, Chicago, July 2000.
409. Orton, C.G. "Treatment Planning: Clinical X-Rays." Presented at the World Congress on Medical Physics and Biomedical Engineering, Chicago, July 2000.
410. Orton, C.G. "Electronic Publishing: Opportunities and Challenges." Presented at the World Congress on Medical Physics and Biomedical Engineering, Chicago, July 2000.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 64

411. Orton, C.G. "Medical Physics in the 20<sup>th</sup> and 21<sup>st</sup> Centuries." Presented at University of Oklahoma Health Science Center, August 2000.
412. Orton, C.G. "Prostate Brachytherapy: Radiobiology." Presented at the New and Future Developments in Brachytherapy workshop, Las Vegas, September 2000.
413. Orton, C.G. "Breast and Gynecological Brachytherapy: Radiobiology." Presented at the New and Future Developments in Brachytherapy workshop, Las Vegas, September 2000.
414. Orton, C.G. "The Future of Brachytherapy." Presented at the New and Future Developments in Brachytherapy workshop, Las Vegas, September 2000.
415. Orton, C.G. "The L-Q Model in Brachytherapy." Presented at the Gershenson Radiation Oncology Center, Harper Hospital, Seminar Series, November 2000.
416. Orton, C.G. and Zellmer D. "Understanding Dose Equivalence in Teletherapy and Brachytherapy through the Linear-Quadratic Model. Refresher Course presented at 86<sup>th</sup> RSNA Annual Meeting, Chicago, November 2000.
417. Orton, C.G. "Fundamental of Radiobiology and Applications." Course presented at the Segundo Curso de Educacion Continua de la Sociedad de Fisica Medica de Nuevo Leon, A.C., Monterrey, Mexico, December 2000.
418. Orton, C.G. Radiobiology: Course presented for the IAEA for Sociedad de Lucha Contra el Cancer del Ecuador, Guayaquil, Ecuador, December 2000.
419. Orton, C.G. "Effects of Radiation on the Developing Fetus." Seminar presented at the Sociedad de Lucha Contra el Cancer del Ecuador, Guayaquil, Ecuador, December 2000.
420. Orton, C.G. "HDR Brachytherapy for Prostate Cancer: Radiobiological Considerations." Presented at the Gershenson Radiation Oncology Center, Harper Hospital, Seminar Series, March 2001.
421. Orton, C.G. "Dose Rate Effects, Physics." Presented at the NIH Translational Research in Brachytherapy Workshop. Bethesda, March 2001.
422. Orton, C.G. "Radiological Comparisons of HDR and Permanent Seed Implants for Prostate Brachytherapy." Presented at the 17<sup>th</sup> Int. Prostate Cancer Workshop, Orlando, June 2001.
423. Orton, C.G. "Treatment Planning: Fundamentals." Presented at the AAPM Annual Meeting. Salt Lake City, July 2001.
424. Orton, C.G. "Treatment Planning: Clinical X-Rays." Presented at the AAPM Annual Meeting. Salt Lake City, July 2001.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 65

425. Orton, C.G. "Radiobiological Considerations in the Comparison of Conformal Therapies of Prostate Cancer." Presented at the 6<sup>th</sup> International Conference on Dose, Time, and Fractionation in Radiation Oncology. Madison, WI, September 2001.
426. Orton, C.G. "Brachytherapy is Preferable over IMRT for Favorable Risk Prostate Cancer." Debate at the 5<sup>th</sup> Int. Conference & Workshop in New and Future Developments in Radiotherapy, Brownsville, TX, October 2001.
427. Orton, C.G. "Radiobiological Comparison of Permanent Seeds and HDR Brachytherapy for Prostate Implants." Presented at the 5<sup>th</sup> International Conference & Workshop in New and Future Developments in Radiotherapy, Brownsville, TX, October 2001.
428. Orton, C.G. "Future of Brachytherapy and IMRT." Presented at the 5<sup>th</sup> International Conference & Workshop in New and Future Developments in Radiotherapy, Brownsville, TX, October 2001.
429. Orton, C.G. "Radiation Induced Cancer and Radiation Protection." Refresher Course presented at the 1<sup>st</sup> Asia Oceania Congress of Medical Physics, Bangkok, Thailand, November 2001.
430. Orton, C.G. "Dose Rate Factors and Fractionation in Brachytherapy." Presented at the 1<sup>st</sup> Asia Oceania Congress of Medical Physics, Bangkok, Thailand, November 2001.
431. Orton, C.G. and Zellmer, D. "Understanding Dose Equivalence in Teletherapy and Brachytherapy through the Linear-Quadratic Model." Refresher Course presented at the 87<sup>th</sup> RSNA Annual Meeting, Chicago, November 2001.
432. Orton, C.G. "Radiobiological Considerations in Breast Brachytherapy: LDR/HDR, Monotherapy, IOBT." Presented at the ABS School of Breast Brachytherapy, New Orleans, January 2002.
433. Orton, C.G. "Principles of Radiation Therapy." Presented at the Basic Science Course, Otolaryngology Department, Wayne State University, January 2002.
434. Orton, C.G., Martinez, A., Forman, J.F., and Joiner, M. "This House Believes that Brachytherapy is Preferable Treatment of Favorable Prostate Cancer over all External Radiation Techniques Including IMRT and Particle Radiations." 8<sup>th</sup> Annual AAPM/MISTRO Great Debate, Novi, MI, March 2002.
435. Orton, C.G. "Radiation Protection." Presented at the Occupational and Radiation Medicine Seminar, Wayne State University, March 2002.
436. Orton, C.G. "Biological Effects of Radiation." Presented at the Occupational and Radiation Medicine Seminar, Wayne State University, April 2002.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 66

437. Orton, C.G. "Brachytherapy and the American Brachytherapy Society: Opportunities and Challenges." Presented at the 23<sup>rd</sup> ABS Annual Meeting, Orlando, May 2002.
438. Orton, C.G. "Permanent Implants for Prostate Brachytherapy: Radiobiological Considerations." Presented at the ABS School of Permanent Implant Prostate Brachytherapy Physics, Orlando, May 2002.
439. Orton, C.G. "The EUD Concept for DVH Reduction." Presented at the 27<sup>th</sup> Annual Meeting of the AAMD, Dearborn, MI, June 2002.
440. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Annual Meeting, Montreal, July 2002.
441. Orton, C.G. "Treatment Planning: Clinical X-rays." Presented at the AAPM Annual Meeting, Montreal, July 2002.
442. Orton, C.G. "Radiobiological Comparison of IMRT, LDR seeds, and HDR Brachytherapy for Prostate Treatments. Presented at the 6<sup>th</sup> Annual International Conference and Workshop on New and Future Developments in Radiotherapy, Las Vegas, August 2002.
443. Orton, C.G. "Radiobiological Comparison of IMRT, Traditional EBT, and BT for Breast Cancer." Presented at the 6<sup>th</sup> Annual International Conference and Workshop on New and Future Developments in Radiotherapy, Las Vegas, August 2002.
444. Orton, C.G. "Future Developments in Radiotherapy." Presented at the 6<sup>th</sup> Annual International Conference and Workshop on New and Future Developments in Radiotherapy, Las Vegas, August 2002.
445. Orton, C.G. "Radiation Physics, and Biological and Health Effects of Radiation." Presented at the 137<sup>th</sup> Annual Scientific Meeting of the Michigan State Medical Society, Troy, MI, November 2002.
446. Orton, C.G. "History of Biological Modeling in Radiation Oncology." Presented at the Henry Ford Hospital Seminar Series, Radiation Oncology Department, December 2002.
447. Orton, C.G. "Radiobiological Aspects of HDR and LDR Brachytherapy" Presented at the 17<sup>th</sup> Annual International Oncology Brachytherapy Symposium and Workshops. Long Beach, CA, February 26 – 28, 2003.
448. Orton, C.G. "LDR/HDR Brachytherapy in Clinical Practice". Presented at the Henry Ford Hospital Radiation Oncology Seminars, Detroit, May 6, 2003.
449. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Annual Meeting, San Diego, August 2003.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 67

450. Orton, C.G. "Treatment Planning: Clinical X-rays." Presented at the AAPM Annual Meeting, San Diego, August 2003.
451. Orton, C.G. "Radiobiological Comparison of IMRT, LDR seeds, and HDR Brachytherapy for Prostate Treatments. Presented at the 7<sup>th</sup> Annual International Conference and Workshop on New and Future Developments in Radiotherapy, Bal Harbor, FL, November 2003.
452. Orton, C.G. "Radiobiological Comparison of IMRT, Traditional EBT, and BT for Breast Cancer." Presented at the 7<sup>th</sup> Annual International Conference and Workshop on New and Future Developments in Radiotherapy, Bal Harbor, FL, November 2003.
453. Orton, C.G. "Future Developments in Radiotherapy." Presented at the 7<sup>th</sup> Annual International Conference and Workshop on New and Future Developments in Radiotherapy, Bal Harbor, FL, November 2003.
454. Orton, C.G. "Radiobiological Aspects of HDR and LDR Brachytherapy". Presented at the Radiation Oncology Department Seminars, University of Michigan, Ann Arbor, March, 2004.
455. Orton, C.G. "Radiobiology of HDR in Prostate and Breast Cancer". Presented at the Advances in Brachytherapy" Workshop, Barcelona, May 2004.
456. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Annual Meeting, Pittsburgh, July, 2004.
457. Orton, C.G. "Treatment Planning: Clinical X-rays." Presented at the AAPM Annual Meeting, Pittsburgh, July, 2004.
458. Orton, C.G. "A review of new technological developments in the radiotherapeutic treatment of cancer". Presented at the BioMed 2004 Conference, Kuala Lumpur, September, 2004.
459. Orton, C.G. "Radiation therapy for prostate cancer". Presented at the BioMed 2004 Conference, Kuala Lumpur, September, 2004.
460. Orton, C. G. "Overview of Radiobiology for Radiotherapy". Presented to the Hong Kong Association of Medical Physicists, Hong Kong, January, 2005.
461. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Annual Meeting, Seattle, July, 2005.
462. Orton, C.G. "Treatment Planning: Clinical X-rays." Presented at the AAPM Annual Meeting, Seattle, July, 2005.
463. Orton, C.G. "HDR Brachytherapy: An Overview of Radiobiology". Presented at the Practical QA for HDR Brachytherapy Workshop, Boca Raton, November, 2005.

Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 68

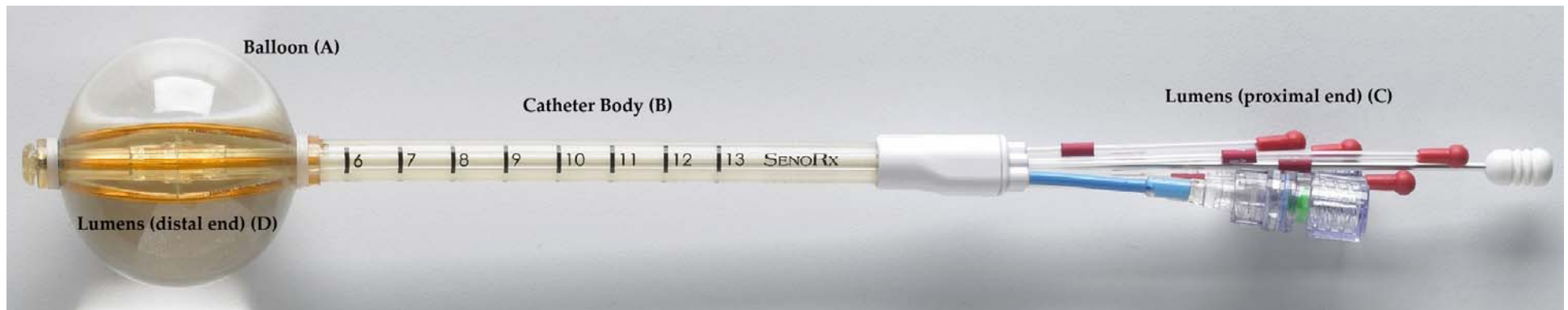
464. Orton, C.G. "Radiobiological Considerations: What is the Optimal Fractionation Schedule". Presented at the ABS School of Breast Brachytherapy, Las Vegas, Feb. 2006.
465. Orton, C.G. "Radiation Protection, Dose Instruments and Shielding". Presented at the Radiation Physics Refresher Course for Residents in Radiation Oncology, Univ. of Maryland, Baltimore, April 2006.
466. Orton, C.G. "Brachytherapy and Radioactive Decay". Presented at the Radiation Physics Refresher Course for Residents in Radiation Oncology, Univ. of Maryland, Baltimore, April 2006.
467. Orton, C.G. "Radiobiological Comparison of Rival Treatment Plans". Presented at the Radiation Oncology Grand Rounds, Rhode Island Hospital, July, 2006.
468. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Annual Meeting, Orlando, July, 2006.
469. Orton, C.G. "Treatment Planning: Clinical X-rays." Presented at the AAPM Annual Meeting, Orlando, July, 2006.
470. Orton, C. G. "Physical and Biological Principles of Highly Conformal Radiotherapy: IMRT, Stereotactic Radiosurgery and Radiotherapy, Proton and Heavy Ion Therapy, and Brachytherapy". Presented to the Hong Kong Association of Medical Physicists, Hong Kong, January, 2007.
471. Orton, C.G. "Radiobiological Considerations: What is the Optimal Fractionation Schedule". Presented at the ABS School of Breast Brachytherapy, Las Vegas, March 2007.
472. Orton, C.G. "Radiobiological Comparison of Rival Treatment Plans". Presented at the New England AAPM Chapter Annual Meeting, Providence, RI, June 2007.
473. Orton, C.G. "Treatment Planning Fundamentals." Presented at the AAPM Annual Meeting, Minneapolis, July, 2007.
474. Orton, C.G. "Treatment Planning: Clinical X-rays." Presented at the AAPM Annual Meeting, Minneapolis, July, 2007.
475. Orton, C.G. "Applications of Radiobiology to Radiological Protection". Presented at the IV Congresso Latinoamerica de Fisica Medica, Cartagena, Colombia, Oct. 2007.
476. Orton, C.G. "Applications of Radiobiology to Radiotherapy Presented at the IV Congresso Latinoamerica de Fisica Medica, Cartagena, Colombia, Oct. 2007.
477. Orton, C.G. "Review of the Radiobiological Principles of HDR Brachytherapy". Presented to the Mexican Medical Physics Society, Monterrey, Mexico, November, 2007.



Colin G. Orton, Ph.D.  
Curriculum Vitae  
Page 69

- 478. Orton, C.G. "Review of the Radiobiological Principles of HDR Brachytherapy". Presented at the Radiation Oncology Center, Wayne State University, Detroit, Seminar Series, December, 2007.
- 479. Orton, C.G. A Brief (Very Brief!) Review of the Radiobiological Principles of Radiotherapy". Presented at the 23<sup>rd</sup> Symposium of the Belgium Hospital Physicists Association, Leuven, Belgium, February, 2008.
- 480. Orton, C.G. "Is Hypofractionation Likely to be Better than Permanent Implants for the Treatment of Localized Prostate Cancer?" Presented at the 23<sup>rd</sup> Symposium of the Belgium Hospital Physicists Association, Leuven, Belgium, February, 2008.
- 481. Orton, C.G. "Radiobiological Aspects of Brachytherapy". Presented at the William Beaumont Hospital Radiation Oncology Department Grand Rounds, Royal Oak, MI, February, 2008.
- 482. Orton, C.G. "What is the Optimal Fractionation Schedule". Presented at the ABS School of Breast Brachytherapy, Scottsdale, February, 2008.

# **Exhibit 2**



Picture of the Contura MLB™ (with labels)